Revista Educația Plus

JOURNAL PLUS EDUCATION

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Volume XXXV, Nr. 1/ 2024

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JOURNAL PLUS EDUCATION

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Volume XXXV, Nr. 1/ 2025
QUARTERLY JOURNAL, PUBLISHED BY
"AUREL VLAICU" UNIVERSITY, ARAD

Volume XXXV, Nr. 1/ 2024

Journal Plus Education (JPE) is an official peer-review quarterly journal, issued by the Faculty of Educational Sciences, Psychology and Social Work, "AUREL VLAICU" UNIVERSITY, ARAD, which is also published online.

Coverage

- ***CNCSIS classification B+ category***
- ***Ulrich's***
- ***Google scholars***
- ***EBSCO***
- ***CEEOL***
- ***CrossReff –DOI-10.24250.jpe***
- ***WorldCat.org***
- ***SCIPIO***
- ***Cite factor***

ISSN: 1842-077X

E- ISSN (online) 2068 – 1151

Editura Universităţii "Aurel Vlaicu"

Arad, 2024

Journal Plus Education Board

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EDUCAŢIA-PLUS
JOURNAL PLUS EDUCATION
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Volume XXXV, Nr. 1/2024
CULEGERE SEMESTRIALĂ DE STUDII ŞTIINŢIFICE ŞI DIDACTICE

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CONTENTS

PROFESSIONAL PERSPECTIVES ON RESILIENCE IN SOCIAL WORK PRACTICE

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Abstract: *Social work is a profession that addresses social problems in society and aims to promote changes that facilitate optimal frameworks for the development of disadvantaged categories and equally promote the healthy development of human relationships. Exercising the profession constituted a permanent challenge due to the professional's daily contact with adversity, in various forms: abandonment, poverty, disabilities, losses, inequalities, etc. We aim to explore the perception of social workers in different social services at community level with consideration of the difficulties of the profession and resilience as a core feature in client practice. 4 in-depth interviews were conducted and 80 social workers from special and primary services responded to a questionnaire on resilience indicators. The results confirm other specialized studies that emphasize that resilience is a specific trait of the social worker (Wolin, 2004; Benard, 1991; Grant, & Kinman, 2012) and address the inherent nature of the profession. Study participants identified several manifestations of resilience, or compartments of it, that enable them to remain or perform better in an environment marked by suffering. A positive self-concept and a strong sense of identity. openness to experience, sense of humor, etc. We conclude that social workers are consciously involved in this process of generating change for the better; however, signals could be observed indicating the need to care for and maintain a healthy organizational climate to prevent occupational risks such as burnout, compassion fatigue.*

Key words: *social work: profession; resilience; adversity.*

The professional nature of social work and resilience

The topic of the resilience of social workers has been a subject of particular interest in the academic literature in recent decades; properly speaking, resilience was included as a profile subject in the education of social workers (Collins, 2017). Indeed, in the practice of social assistance, specialists meet daily with deficiency, losses, lacks or

suffering; this fact definitely leads to stress and trains various resources, such as: resistance to stress, a robust psychic structure, a high level of optimism and a cheerful and open, to experience temperament. Much has been written about the burnout of social workers (Kinman and Grant, 2011; Gómez-García, Alonso-Sangregorio, Llamazares-Sánchez, 2020; Barck-Holst, et al., 2021); including that this would be the reason why this professional category only stays in the profession for around 8 years in comparison with other professions that are practiced under conditions of adversity (Curtis, Moriarty and Netten, 2010). The constant contact with the victims of the abuse of abandoned children, with people who are alone or who are experiencing major losses, deaths, etc., gives the practice a reputation of being a difficult profession. Several professional risks have been identified, including burnout (Maslach, Leiter, Schaufeli, 2008; Williams, 2015), secondary traumatic stress (Wagaman et al., 2015), compassion fatigue (Adams, Boscarino, Figley, 2006), which seriously affects the state for the welfare of social workers.

As a result of this fact, Vîrgă, et al., (2020) draws attention to the need to care for and maintain a healthy organizational climate, especially in social assistance where the employees themselves provide care and protection. Despite all the adversities they come into contact with, it seems that social workers express significant satisfaction regarding the impact they have on people (Wendt, Tuckey and Prosser, 2011). In these conditions, the resilience of social workers appears as an extremely valuable trait, which makes it possible not only to survive but to exercise the profession with enthusiasm (Wendt et al., 2011). Resilience refers to an ability to return or recover after a period of difficulties, adversity or after stress-causing events, without affecting the mental health. Bonanno et al., (2004) catalogs it as the quality of rare and exceptionally healthy individuals; we can say that it is the key ingredient for the survival of the human species, especially if we consider the multiple pressures that we all experience every day. However, Collins (2017) criticizes the frequent association of resilience with social assistance, emphasizing in this way the intervention of the individual worker at the expense of forming a more extensive vision, such as that of the structural context of social assistance. Other authors are interested in understanding the nature of resilience; Grant, Kinman, (2012) believes that the predictors of this important quality consist of the high level of social trust and empathy and capacity for reflection. The table below contains a synthesis of the relevant academic literature on the nature or resources of resilience.

Table no. 1. *Synthesizing resilience resources from specialized literature*

Resilience indicators	**Specific behaviors**	**Specialized literature correspondent**
Resistent traits	A mix of personal traits and protection factors which are identified to determine a good mental health	Werner and Smith, 1982 Werner, 1989
Sense of humor, sense of direction and mission	Engaging in coping strategies such as minimizing or rationalizing	Garmezy, 1981
Intellectual capacity, adaptive distancing	Perception of reality mediated by intellectual capacity, identifying solutions	Jordan, 1992
The possession of a talent or an ability	Focusing on a hobby, talent or skill leads to healthy distancing from the source of trauma and develops creativity	Wolin & Wolin, 1993; Werner & Smith, 1982, Garmezy, 1991; Rutter, 1989; Werner, 1989; Luthar & Zigler, 1991; Kumpfer, 1993; Anthony, 1987; Wallerstein, 1983
Self-efficacy	Self-esteem is a component is the belief that one is competent to perform certain tasks	Bandura, 1977 Werner (1985)
Constant relationships with positive adults	Belief that one is in control of one's destiny—that misfortunes will be resolved and the odds can be overcome. talent, skills or a strong interest can help build resilience.	Benard, 1991

Source: *Turner, S. G. (2001), https://doi.org/10.1606/1044-3894.176*

2.1. Research description

The topic we addressed, namely, the investigation of the perception of social workers regarding resilience required the development and carrying out of a mixed type of research, in which we applied a questionnaire and applied 4 interviews with social workers from different fields of activity.

2.2. Aim

Description of the professional setting of social assistance, as a setting marked by adversity that demands the high emotional and social skills of social workers.

2.3. Objectives

- Exploring social workers' perceptions of behaviors associated with resilience and describing the profile of social workers considered resilient.
- Identifying the perceptions of social workers in the field of child protection and other fields of activity regarding resilience indicators
- The description of the attitude, the way of reporting to the adversities specific to the practice of social assistance

2.4. Hypothesis and sample

1. Specialists in the field of social assistance are aware of the demanding nature of the profession, which calls for the constant mobilization of resilience as a personality trait
2. There are services that train this trait more frequently and intensively
3. The indicators of resilience are perceived differently depending on the individual resources and mechanisms of the social workers to resist adversities

The structured questionnaire was applied to a number of 40 social workers in the field of child protection (specialized services) and 40 social workers working in primary or administrative services (from SPAS, DAS).

The study aims to answer the following questions:

1. What are the services that generate the greatest sources of stress or that train the resilience of social workers?
2. What are the resources that you activate most frequently in situations of stress and adversity?

The socio-demographic structure of the sample is displayed below:

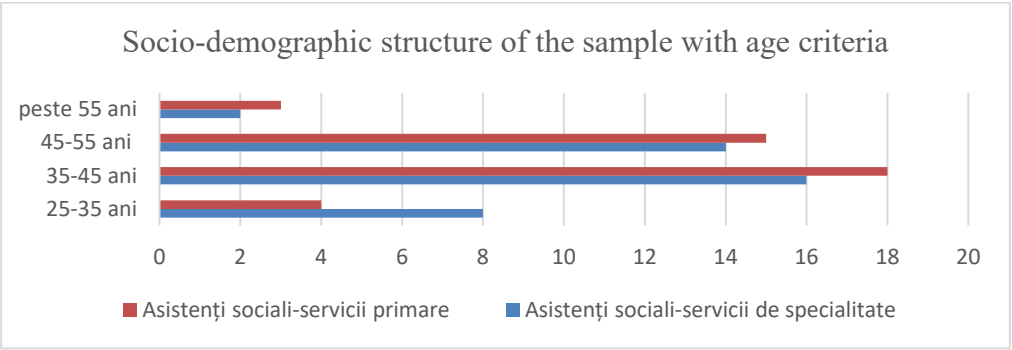

Figure no 1. The socio-demographic structure of the sample by age category

2.5. Methods

Field survey based on questionnaire constituted the research method used in the present study. The questionnaire was applied in child protection services and primary social assistance services, two areas

that require somewhat different professional skills. 4 interviews were also carried out, which aimed to evaluate respondents' perceptions of the behavioral indicators of a resilient person and the concepts that describe the most important challenges they face in child protection services.

2.6. Results

Respondents emphasized that resilience is a skill that is trained every day. The conducted interviews revealed exceptional qualities of the participants who speak with passion and enthusiasm about the profession they practice. I can easily list the disadvantages of doing social assistance, bringing serious and pertinent criticisms to the blockages in the social assistance profession, but the representation they have about their professional meaning is one to be admired, almost heroic. There must be people like us, really concerned with changing the defective things and their impact on people (ID. 20 years of experience in child protection).

Making a synthesis of the answers obtained, we list the following dysfunctions that make social assistance practice difficult:

- Helplessness in cases of abandonment/renunciation of one's own child
- Lack of resources in managing serious cases
- Weak legislation in cases of abuse and neglect / limited interventions
- Overcrowding with difficult cases

The participants repeated in unison the need to institute more drastic measures that could limit the effects of increasingly accentuated social problems and the creation of a realistic plan to prevent marginalization and limit social inequalities. The 4 conducted interviews revealed some personality characteristics of the social workers. Emotional resilience is not only a quality of the individual, but a dynamic resulting from the interaction between personal characteristics and external factors. Respondents are of the opinion that upon entering the child protection system as specialists they had limited resources to deal with the stress and trauma they came into contact with. They also noticed this in new entrants to the system, in graduates of social assistance programs. This study shows that social workers who are more resilient are those who can maintain positive relationships in their personal and professional lives, access support from a range of sources, demonstrate appropriate empathy, draw on a range of coping styles and successfully manage and contain their own and others' emotions. This is not to say that resilient social workers are superhuman and free from life's difficulties. They face the same problems as others, but tend to deal with setbacks constructively and

persevere in the face of difficulties.
The 4 cases also experienced negative feelings such as frustration, anger and anxiety, but balance them with positive experiences and reconsider the adverse reality. According to the analysis, experiences and emotions expand and build personal resources rather than depleting them, thus leading to resistance. Resilience is also self-sustaining: for example, flexibility and self-compassion contributed to the development of other skills and resources.

Interview 1.
A.S., 48 years old, child care protection system employee, 20 years of expertise
The participant points out that the constant exposure to traumatic situations initially constituted "a touchstone", a huge challenge that he faced. The enthusiasm at the beginning turned over time into overcrowding, burdening, loss of resistance. It describes the environment as one marked by permanent suffering, loss, unmet needs. Even though every day demands and trains new and new availability and skills, even though she feels that her resilience has decreased, there was never a moment in the acre that she wanted to give up.

"Choose a job you love and you'll never have to work a day in your life." – Confucius. A career in social work is a gift in that you are allowed to enter the intimate lives of wonderful people in your efforts to help them on their journey of recovery, where victims become survivors and systems bend to meet the needs of those more vulnerable people in our society.

I'm a qualified social worker and I work 50 hours a week and I still don't get it all done. The work never ends. I work from home on weekends constantly. I need to know that the work I do has an impact on people's lives. I don't have to wonder if my efforts made a difference. I see them every day in the lives of the people I work with" (A. S., 48 years old).

Interview 2.
The interview applied to C.S. case manager, 36 years old, revealed some truths-axioms regarding the specifics of the social worker profession. The respondent has the capacity for analysis and synthesis, coordination and collaboration. He integrates previous experiences but manages to look at each case from 0. He has built step by step resistance to stress and the huge soul losses with which he works and with which he is in constant contact, he self-evaluates as successfully achieving the quality standards required for the position on who occupies it. Experienced social workers involved in the present study readily share feelings of pressure and large or complex cases. A few of

their observations have been selected with their permission:
I chose Social Work because I have always believed in the fight for human rights. I believe our profession can change the world on so many levels: for each person we have the opportunity to serve, for entire family systems, and for the communities in which we live. I am grateful for the opportunity to be part of a profession that reaches out to our most vulnerable populations and strives to make a difference in so many lives. The social work profession gives me the opportunity to work in a variety of settings and to work for multidimensional collaborative change. Working in this field, I am able to empower, support, motivate, connect and encourage resilience. To challenge stereotypes and avoid errors. Also, the fight against discrimination, oppression and injustice in any form. In this field, I get to be a voice for all those who cannot stand up for themselves. It's worth making this world a better place one person at a time.

Interview 3
Respondent L.B. (50 years old), at the time of the interview, declares himself overwhelmed and assaulted by constantly changing tasks due to the unpredictability and complexity of the cases. The number of beneficiaries is constantly increasing, their needs are diversifying, the respondent emphasizes the existence of a continuous internal struggle determined by the desire to produce change and limited resources on the one hand, and the deficient legal instruments they sometimes have at hand.
I am in Social Work because the profession gives me the opportunity to help people from a multitude of situations. It is my natural aptitude; I need to shine in this field to be myself. I had periods when I thought I couldn't do it anymore. I mounted quickly and took it from the end. Social work teaches me to respect vulnerability, relationship, the person's right to choose, their suffering, their resources and the responsibility we have in providing quality care.

Interview 4.
E.S., 47, says her resilience was tested very early on due to the loss of her mother and the difficult path in the special protection system. He chose the profession of social worker from the first years of high school out of a desire to save other lives. After 25 years of activity with abandoned children, E.S. he feels he needs to reorient himself professionally. His personal life is full of suffering; he appreciates that he does not have the necessary resources to counter the adversities at work.
I had a rough childhood and I wanted to help children so they wouldn't have to go through the pain and anguish I had to go through myself.

"I will be leaving soon because the stress and pressure is too much. I need to meet healthy and strong people; I don't have the resources to raise them myself.

Results

The interviews highlighted and confirmed what the literature has found about resilience factors. The life path of each respondent, personality traits, age and experience are particularly important indicators for outlining the potential for resistance to stress, trauma specific to the practice of social assistance.

In the table below we have summarized the concepts that describe the practice of social work, according to the social workers involved in the study, and that define the adversities they face on a daily basis. According to them, these adversities fundamentally train and demand all their emotional and cognitive resources.

Specialty services	**Concepts associated with services practice**
Adoption service - post-adoption department	Contact with the child who experienced abandonment, abuse; Difficult route marked by serial abandonment
The complex child assessment service	Disability, powerlessness, limitation, abandonment, loss trauma
Complex assessment service for adults with disabilities	Loss, deficiency, disability
The Service for the Prevention of Social Marginalization, Trafficking, Migration and Repatriation	Separation, loneliness, suffering, abandonment, trafficking, kidnapping, abandonment
	Abuse, neglect, abandonment, murder, extremes, rape, incest, contempt, hatred, risk, vulnerability
Case management service for children in individual/family foster care	Abuse, neglect, abandonment, murder, extreme limits, rape, incest, contempt, hatred, risk, vulnerability, Disability, helplessness, limitation, abandonment, loss trauma

Table no. 2. *Concepts associated with the practice in the field of child protection services*

The analysis of the results indicates quite different perceptions of the social workers included in the two categories: specialized services and primary services. The applied questionnaire sought to evaluate the perception of social workers regarding the organization on a scale of the most important behaviors specific to resilience. The results transposed in the figure below show that:

A positive self-concept and a strong sense of identity constitute the main resource in the fight against adversities, followed by enthusiasm, optimism and hope (categorized as fundamental conditions in exercising the profession of social worker). For child protection respondents, the ability to learn from experience and to approach reality with a sense of humor are extremely important. For specialists from other fields (who work predominantly in the office, with the classification of documents and files, the relationship with the client, where qualities such as organization, discipline, routine are required) resilience is rather associated with well-developed social skills and social trust, the ability to call on sources of support and set fair boundaries.

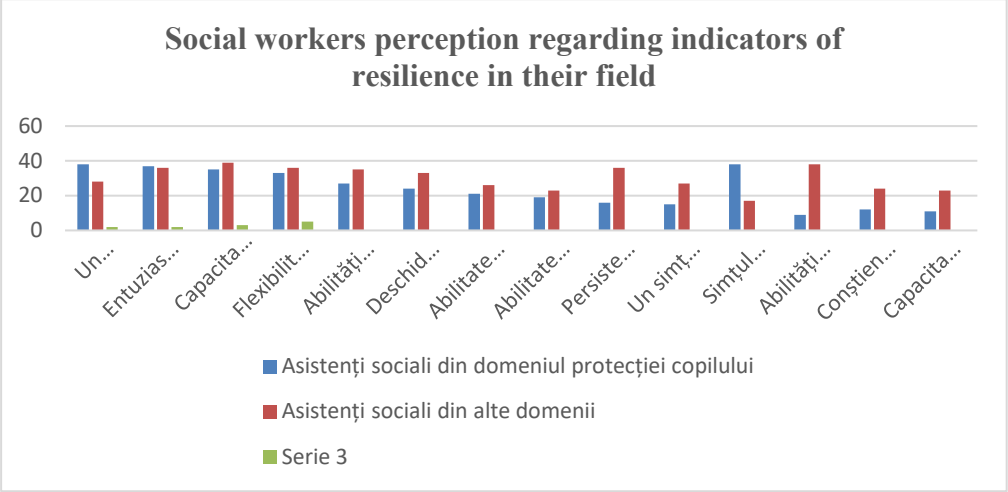

Figure no. 2. Social workers' perception of indicators of resilience in the social work profession

In the perception of social workers, study participants, resilience is represented by different behaviors, such as those listed below.

- A positive self-concept and a strong sense of identity.
- Flexibility and adaptability, drawing on a wide range of coping strategies and creative problem-solving skills
- Enthusiasm, optimism and hope
- The ability to learn from experience
- Well-developed social skills and social confidence
- Openness to experience
- Sense of humor
- Ability to identify and call on sources of support
- An internal locus of control (where an individual attributes their success to their own efforts and abilities) and a high degree of autonomy
- Self-awareness and emotional literacy.

- Self-compassion and the ability to prioritize self-care.
- Critical thinking skills.
- Ability to set appropriate boundaries.
- The ability to recognize and rely on one's own unique internal model and external resources.
- Persistence in the face of challenges, setbacks and adversity.
- A sense of purpose and the ability to derive from difficulties and challenges.
- Future orientation.
- Sense of humor.

The results indicate different perceptions, and the differences are determined by the different specificities of the activities in the two sectors of activity.

Conclusions

A professional social worker-client relationship that fosters reciprocity and creates solidarity and a sense of connectedness can be the vehicle to transform casualties and deficits into victories and resilience (Phillips, 1994; Jordan, 1992, 1998). Wolin and Wolin (1993) tell several stories about resistant people and their interventions, as therapists, used to help people get in touch with their resistance. The professional environment is described by the study participants as being marked by adversities, the terms with which the practice of social assistance was associated were: loss, suffering, loneliness, trauma, abuse, etc.

The applied questionnaire allowed to obtain some results that confirm the benchmarks in the specialized literature regarding the resources and indicators of resilience; depending on the specifics of the beneficiaries and the issues addressed by each respondent, they ranked the behaviors specific to resilience differently. The conducted interviews allowed the completion of the quantitative study with qualitative data about the experience, the attitude in relation to the adversities, the description of the professional path and the personal path from which the ways of coping and training the resources of resilience result.

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THE LEVEL OF PROFESSIONAL SKILLS OF PEDAGOGUES IN THE CONTEXT OF THE DEVELOPMENT OF SCIENTIFIC THINKING

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Abstract: *Scientific thinking is essential for equipping students to tackle the complexities of the modern world, and teachers play an important role in nurturing this skill. To gain insights into the competencies utilized and developed by pedagogues in applying scientific knowledge to everyday problem-solving, we conducted an expansive survey to glean their perspectives. Presented herein are the synthesized and meticulously selected directions derived from the respondents' responses. The predominant focus of pedagogues lies in practical activities that intersect with daily life, encompassing both socially useful and cultural activities. This emphasizes the significant impact of culture on scientific education as a whole, and particularly on the development of scientific thinking. Our analysis of responses obtained through a comprehensive questionnaire administered to 511 educators revealed a discernible imperative for educators to elevate their proficiency in scientific thinking. Teachers require specific knowledge and skills to effectively professionalize in pedagogy related to the development and enhancement of scientific thinking. Foremost among these is an imperative foundation in comprehending scientific thinking as both a cognitive process and a human faculty, encompassing facets of critical, systematic, and reasoned analysis. While teachers adeptly employ abstract language, problematization methods, and acknowledge the significance of experiments a notable gap exists in their professional preparatory endeavors.*

Keywords: *development; pedagogues; professional skills; representations; scientific thinking.*

Introduction

Contemporary pre-university education encounters challenges in fostering an environment that nurtures the development of scientific

thinking in students. Despite earnest initiatives, the prevailing school curriculum predominantly fixates on the cultivation of critical thinking a precursor deemed fundamental for scientific thought among students (Hackling, 2015; Hyytinen, Toom, & Postareff, 2018; Paul & Elder, 2003). This endeavor, however, remains incomplete, leaving significant aspects of scientific thinking remaining largely unexplored.
Given that the onus of fostering scientific thinking predominantly rests upon universities, this approach ostensibly aligns with the difficulty in distinctly demarcating scientific thinking from its professional facets or directing it toward a specific scientific domain (the professionalization of thinking) (Șamsutdinova, & Shuvalova, 2016). Nevertheless, a candid acknowledgment is warranted: akin to schools, universities lack a robust system for evaluating the outcomes of effective scientific thinking training. Furthermore, the requisite instruments essential for the subsequent refinement of scientific thinking in a specified trajectory are yet to be meticulously formulated.

Literature Review

Scientific thinking represents a complex concept within specialized literature explored by numerous authors, each offering unique contributions that enrich the comprehension of this pivotal concept crucial for scientific advancement and understanding the surrounding world. Through the analysis of the proposed definitions, significant differences and common elements can be identified, bringing clarity to the various aspects of scientific thinking.
Dewey (1997) underscores the intimate link the scientific method and practical activity, positioning scientific thinking as an adaptable tool for various types of investigations. Popper (2002) highlights the organization of genuine forms of cognitive activity in scientific thinking, with the continuous testing of hypotheses and the potential for paradigm shifts. Kuhn (2002) defines scientific thinking as an intentional, consistent, and goal-oriented way of obtaining new and original knowledge, particularly focusing regarding the process of knowledge acquisition and transformation. Moles (1975) contributes a distinctive perspective, concentrating, focusing on heuristic strategies for problem-solving, highlighting the practical and operative nature of scientific thinking. Zimmerman (2007) outlines scientific thinking as a complex set of cognitive and metacognitive skills, underlining their development through exercises and practice, with an emphasis on its operational nature. Koslowski (2008) introduces a social dimension, defining scientific thinking as an applied process for problem-solving in both research and the social context. Paul and Elder (2003) expound on scientific thinking as a type of thinking specific to a particular problem or scientific domain, involving inferences and the evaluation

of scientific research. Dunbar (2012) describes scientific thinking as a higher mental process, active in presenting arguments and judging scientific content, emphasizing involvement in scientific activities. Lehrer and Schauble (2000) define scientific thinking through its capacity for scientific argumentation, highlighting the importance of argumentative skills in the scientific process.

These various definitions collectively underscore the intricate nature of scientific thinking, incorporating cognitive, metacognitive, and practical aspects.

The synthesis of previous studies (Paul & Elder, 2003; Hackling, 2015; Perjan & Sanduleac, 2018), conclude the imperative for in-depth research, focusing on a wide range of topics related to scientific thinking across varying age groups, as well as the essential role of teacher training in fostering the development of scientific thinking in students. For a student to become a highly potential scientific thinker, capable of scientific creativity, these characteristics should be inherent.

Sternberg (1997) postulates that new scientific discoveries necessitate a predisposition or inclination for engagement, encompassing intellectual abilities, knowledge, and motivation, as well as problem-solving skills. He conceptualizes these predispositions as "thinking styles" (Sternberg, 1997). Sternberg (1997) argues that knowledge is a distinct and interconnected resource in the construction of intellectual abilities, along with creativity, thinking styles, personality, motivation, and the environment. He labels these six attributes as the *Investment Theory of Creativity*, as the author believes that investment implies a conscious choice to see a final outcome for gain. Thus, Sternberg clarifies that the attributes in the investment theory are "inputs" into the result of a creative process (Sternberg, 1997).

MacKinnon raises a critical point, noting that most studies tend to be more retrospective rather than creative, often focusing on successful problem-solving attempts. Individuals engaged in scientific thinking, especially those with less capability, might tend to imitate rather than originate due to a lack of confidence or proficiency in their scientific thinking potential. MacKinnon postulates that, at this stage, individuals engaged in the process of developing scientific thinking need a better understanding of the cognitive and motivational processes involved in the act of scientific thinking (Stumpf, 1995, 238).

Content knowledge plays a pivotal role in nurturing both scientific and critical thinking abilities. According to the *Domain Learning Model* (DLM) proposed by Alexander (Alexander et al., 1995), students must progress toward the competence stage of knowledge development to acquire the requisite foundation for critical thinking (Eric et al., 2018, 25). Therefore, teachers bear the responsibility of assessing students' foundational knowledge, identifying misconceptions and discerning alternative concepts prior to delving into new topics, all of which align with the premise of scientific literacy that the teacher must consider in

the discipline (Alexander et al., 1995, 26). This corresponds to the initial stage according to the *Domain Learning Model* (DLM) proposed by Alexander, which involves familiarizing students with limited *domain knowledge*, and *subject knowledge* gradually progressing toward the depth of knowledge about specific subjects in that domain. During this nascent phase, students' lack of expertise and exposure in the given field poses a risk, potentially leading to limited or situation-based interest, heavily influenced by environmental and cultural factors. This lack of familiarity could hinder strategic processing skills crucial for content mastery, which materializes in the second stage in the form of skills, including an increase in domain knowledge, and familiarization with scientific concepts. Due to this broader and deeper body of knowledge, students can apply diverse information processing strategies from simple to complex (Alexander et al., 1995). According to Shamos (2012), this would imply the stage of functional scientific literacy, which refers to the ability to master scientific vocabulary, as well as to be able to converse, read, and write coherently, using scientific terms not necessarily in a specific context, but still meaningfully (Shamos, 2012, 88). Such changes in knowledge and strategic processing are further associated with an increase in individual interest, as students no longer need to rely on the situational characteristics of the environment to pay attention to presented scientific content.

The third stage, competence, is marked by a solid and deep knowledge foundation, accompanied by heightened individual interest. Notably, individuals at this stage deploy cognitive strategies for deep processing to explore the field with probing inquiries and innovative ideas. Alexander posits that attaining this stage is a rarity for most individuals (Alexander et al., 1995). Demirel and Gücüm (2009) argue that to have a high level of scientific thinking, necessitates its cultivation from the initial training phase, further developed through continuous and deliberate practice. This development is achievable through the cultivation of specific competencies such as creativity, research and problem-solving skills, etc.

The development of scientific thinking encompasses numerous contributing factors, spanning creativity, skills, behavior, personality traits, and others. These factors can be divided into intrinsic (internal factors, such as personality traits or experience) and extrinsic (external factors, mainly related to the external environment). There are factors that include the natural (inherent) development of scientific thinking and are closely related to aspects and elements of psychological development that consist of artificial intervention in the development of scientific thinking and represent an infrastructure for the development of scientific thinking. We propose a categorization into

three primary domains: the operational aspect, the intellectual aspect, and the personality components. From an educational standpoint, discussing the teachability of thinking in general and scientific thinking in particular, it is necessary to amplify the student's receptiveness to educational influences and to achieve, thus, progressive accumulations materialized in different personality structures - the set of possibilities to influence with educational means the formation of the personality of each student and the innate characteristics that give each individuality.

Methodology

Research Questions

1. What knowledge and skills are essential for teachers to effectively professionalize in fostering scientific thinking development?
2. How do teachers actively promote the cultivation of scientific thinking in students?
3. What specific methodologies and approaches do educators utilize to nurture scientific thinking in students, and what influence do these methods wield on the learning process?

In the context of the provided exploratory research, the level of professional skills among pedagogues was investigated concerning the development and enhancement of scientific thinking. The conducted research delved into the theoretical, experiential, and experimental framework of the development and enhancement of scientific thinking in pedagogues, rooted in specific set of norms, laws, principles, and rules.

The design of the pedagogical experiment was shaped based on six research axes:

1. Examining teachers' comprehension of the concept of scientific thinking, including its defining characteristics and the role of cognition and metacognition in its evolution.
2. Investigating teachers' role in fostering curiosity and wonder in students at the initial stage of students' scientific thinking development, as well as facilitating and developing scientific thinking in students in general.
3. Analyzing the methods and procedures applied in the development of scientific thinking in students by teachers within both curricular and non-formal activities.
4. Studying and analyzing the personality traits that can contribute to the development of scientific thinking in students from a psychopedagogical perspective.
5. Investigating the conducive conditions for cultivating scientific thinking in students, coupled with the selection and analysis of practical proposals.

6. Exploring teachers' perceptions regarding the professional profile of an educator demonstrating strong scientific thinking skills

Therefore, the research focuses on several *dependent variables:*

- the knowledge and skills of teachers regarding pedagogical professionalization in relation to the development and efficiency of scientific thinking;
- the actions undertaken by teachers to facilitate the development of scientific thinking in students.
- the application of methods and procedures by pedagogues in the development of scientific thinking in students;
- the personality traits of students who exhibit well-developed scientific thinking;
- The conducive conditions fostering the development of scientific thinking.
- the professional portrait of the teacher exemplifying strong scientific thinking.

To evaluate the proposed variables, we developed a questionnaire containing open-ended questions. The applied questionnaire allowed us to determine the representations and knowledge about scientific thinking.

The construction of the questionnaire was rooted in several theoretical frameworks on scientific thinking development, grounded on identified criteria for developing scientific thinking in teachers and drawing from Bloom's Taxonomy revised by Krathwohl & Anderson, which is based on structuring and forming cognitive skills of factual, conceptual, procedural, and metacognitive types (Anderson et al., 2001); the teleological approach to competencies in the education system, specifically the cross-disciplinary nature as an important characteristic of key competencies (Guțu, 17-19); and the theoretical references for conceptualizing university curriculum (Cabac, 2011). This tool (questionnaire) includes complex and critical thinking competencies (Perjan & Sanduleac, 2018), outlined in the indicators and descriptors for the development and enhancement of scientific thinking in pedagogues. The indicators and descriptors for the development and enhancement of scientific thinking in pedagogues are based on the principles and methodological requirements for constructing competency-centered curriculum (Joița, 2010, 86-88).

The identified criteria for developing scientific thinking in teachers served as reference points for formulating specific indicators and descriptors, delineated as follows:

- Scientific thinking is an intentional, logical, consistent, and goal-oriented way of thinking.

- Scientific thinking employs heuristic problem-solving strategies (educational, disciplinary, every day).
- Scientific thinking underlies the development of the cognitive system of an individual (across the four cognitive levels: knowledge level, processing level, representational algorithm level, implementation level).
- Scientific thinking involves all operations and forms of human thinking (analysis, synthesis, judgment, reasoning).
- Scientific thinking encompasses cognitive and metacognitive abilities.
- Scientific thinking is a process that underlies scientific reflection and argumentation.
- Scientific thinking includes the values of knowledge, multiple intelligences, and moral intelligence, representing the axis of self-improvement for teachers.
- Scientific thinking incorporates various types of thinking (critical, lateral, axiomatic, etc.).

That means that we can classify descriptors in three main parts: at the knowledge level, at the application level, and integration level. Based on response quality, competencies in scientific thinking are assessed as inferior, moderate, or superior (See Appendix).

The questionnaire comprises 11 items aimed at exploring various dimensions of scientific thinking among educators:

1. How would you define scientific thinking?
2. Enumerate the key characteristics of scientific thinking.
3. In what ways do you foster students' curiosity and wonder to develop scientific thinking?
4. How do you support and facilitate the development of scientific thinking in students?
5. Specify the methods and procedures you employ to foster scientific thinking in students?
6. Do you perceive connections between cognition, metacognition, and scientific thinking? (Please provide a succinct explanation)
7. What strategies do you employ to foster scientific thinking in students during non-formal activities?
8. Which personality traits do you believe influence the enhancement of scientific thinking/its development in students?
9. What are the crucial conditions for the development of scientific thinking in students?
10. What recommendations or proposals do you have for enhancing scientific thinking in students within their academic disciplines?

11. Provide a succinct and essentialized portrait of the teacher who possesses a high level of scientific thinking.

Sample and Data Collection

The study was conducted on a sample of 511 experimental subjects, consisting of pedagogues from 224 educational institutions from the Republic of Moldova and Romania (rural and urban environment). These participants contributed significantly to the exploration of knowledge and perspectives regarding the conceptualization of scientific thinking. The study delved into the perceived significance of nurturing scientific thinking among both students and teachers, elucidating specific conditions, training methodologies, and strategies to enhance the efficacy of scientific thinking. Additionally, the research aimed to identify key personality traits influencing its development.

Data Analysis

The reliability analysis conducted aimed to ascertain the consistency of the items in measuring the construct of developing and enhancing scientific thinking in educators. Utilizing Cronbach's Alpha coefficient, we assessed the internal consistency of the questions (items) based on the teachers' response data from the questionnaire. The teachers' response data from the questionnaire were subjected to reliability analysis. The findings revealed a Cronbach's Alpha of 0.706, which is within the range acceptable for research. The Cronbach's Alpha based on standardized items is 0.724 (Cooksey, 2007).

Findings/Results

Item 1. How would you define scientific thinking? The findings from the analysis of responses to item 1 shed light on pedagogues' understanding of fundamental concepts related to scientific thinking. The observations indicate that educators predominantly perceive scientific thinking as a *mental or cognitive process* (64 expressions), a *human capacity* (262 expressions), an *ability to formulate ideas, a problem, or critically analyze* (267 expressions). In reflective terms, scientific thinking is expressed as critical, structured, rational, logical, and higher-order thinking skills. Similarly, it is viewed through the lens of logical reasoning as a form of thinking, through which induction, deduction, argumentation, abstraction.

Pedagogues also associate scientific thinking with various of science such as observations, experience, investigation, research, experimentation, scientific concepts, etc. They demonstrate an understanding of the scientific aspects inherent in the expression of scientific thinking. Additionally, they conceptualize scientific thinking as a framework for generalized reflections of reality from an objective

and rational standpoint.

Item 2. Enumerate the key characteristics of scientific thinking. The analysis of responses to item 2 illustrates that pedagogues prioritize specific characteristics when defining scientific thinking, with objectivity being the most emphasized attribute (86 expressions). This emphasis is closely followed by the qualities of *accuracy*, (42 expressions), and *rationality*, (67 expressions). Notably, the attribute of *real facts* surfaces in (65 expressions), suggesting an inclination towards *demonstrability* (45 expressions) - the capacity to validate information for factual accuracy. Additionally, respondents' express *communicability* as another significant aspect of scientific thinking, totaling (47 expressions).

All these characteristics predominantly manifest as nouns, accompanied by adjectives that vividly describe and enhance the nature of each trait. Respondents underscore the importance of achieving these characteristics *methodically* (148 expressions) and *systematically* (41 expressions), *analytically* (128 expressions), *symbolically* (112 expressions), *verifiably* (102 expressions), *transmissibly* (91 expressions), and *transcendentally* (88 expressions).

Item 3. In what ways do you foster students' curiosity and wonder to develop scientific thinking? The analysis of pedagogues' strategies in developing students' curiosity and wonder reveals a prevalence of abstract language and vague terminology. Terms such as *things* (50 expressions), is a common term usually used when one does not exactly know what the real possibility of intervention would be. Experimental subjects used this term in various contexts: researching things, workgroups, mysterious things, work material, concrete things, new things, and ways of working. Mostly, abstract notions are used, indicating the need for an activity but not specifying how to facilitate students' curiosity and wonder. Similarly, the term *activity* (12 expressions) and *research* (22 expressions) are frequently used in the same way. The term *problem* (56 expressions) is frequently used to emphasize the need for problematization methods, which, in the view of pedagogues, are strictly necessary to awaken a sense of curiosity and wonder in students. Another term frequently used by respondents is the word *experiment* (39 expressions). This term is used frequently, but the context in which it is evoked is mostly general and does not reveal the essence of the activity to express the need to awaken curiosity and wonder in students in the development of scientific thinking. In most cases, the experiment is used as a demonstrative example, i.e., a narrative formulation, and only a small percentage (approximately ≈ 5%) of subjects have stated that they have resorted to the experimental method and have described how it would influence the development of interest in scientific thinking. *Interest* (33 expressions) follows

experiment hierarchically in the context, indicating its importance in fostering scientific curiosity.

Subsequently, terms such as *project* (33 expressions), *group* (32 expressions), *game* (31 expressions), and *discovery* (29 expressions) are also described. These are used by subjects with the meaning of consolidating teams through educational games and experimenting with the discovery of new things, and the element of novelty would be the basis for these activities. Although the notion of *new* is not evoked by subjects, the notion of discovery in this case is directly proportional to that of experiment, activity, or research. In other words, subjects call for the active involvement of students in research activities in their proximal development zone. Some are aware of the need for student involvement in such activities, while others only focus on demonstrative aspects. One thing is certain: no teacher knows how this should be done in a system of concrete steps that would contribute to a reliable, feasible result and ensure durability and connection with other components.

Item 4. How do you support and facilitate the development of scientific thinking in students? Analysis of the responses provided to item 4 regarding the support given by pedagogues in facilitating the development of scientific thinking in students highlights their intention to develop these skills. The concept of *development* (76 expressions) emerges as the most frequently referenced concept among respondents, signifying their commitment to nurturing scientific thinking. Similarly, the subjects place great emphasis on *modern teaching-learning methods* (56 expressions), at times specifying certain methodologies while at other times simply affirming their necessity. The concept of "idea generation" (45 expressions) is another frequently used explanation, reflecting educators' inclination toward fostering individual thinking manifestations in students as a pathway to developing scientific thinking. The concept of *involvement* (43 expressions) represents a continuity of the vision that ideas need to be developed through modern, active methods (project-based learning, individual and group competitions, writing marathons, concept mapping, the method of titles, problematization method, etc.). The term *experiment* (36 expressions) is used by respondents to designate one of the fundamental methods contributing to the development of scientific thinking. However, no respondent provides details regarding the context of applying the experiment, does not identify specific directions, or exemplifies other effective methods that would provide clarity on how to facilitate the development of scientific thinking in students through this method. This leads us to conclude that the experimental method, in this case, is mentioned by subjects as necessary, but it is not fully utilized in the teaching-learning process.

Item 5. Specify the methods and procedures you employ to foster scientific thinking in students? The methods most frequently cited by educators for nurturing scientific thinking in students included: *the problematization method* (108 expressions), various *role-playing, logical, or didactic games* (106 expressions), *case study* (87 expressions), *experiment* (65 expressions), the *method of thinking hats* (63 expressions), *projects* (56 expressions), *concept mapping* (56 expressions), *analysis* (46 expressions), the *Cube method* (46 expressions), *learning by discovery* (43 expressions), *communication methods* (38 expressions), the *random stimulation method* (29 expressions), *Venn diagram* (24 expressions), the *Lotus method* (23 expressions), *research* (23 expressions), *debate* (22 expressions), *group or team activities* (21 expressions), the *observation method* (17 expressions), *computer-assisted instruction* (17 expressions), the *Mosaic method* (16 expressions), etc.

Analysis of the responses provided valuable insights: some pedagogues drew upon their professional experience, while others listed potential methods they believed could contribute to the development of scientific thinking. However, only a few respondents provided a detailed presentation of how they could engage with a specific method, outlining the necessary prerequisites for their successful application in advancing scientific thinking skills.

Item 6. Do you perceive connections between cognition, metacognition, and scientific thinking? (Please provide a succinct explanation) Pedagogues are uniformly tempted to present the same vision regarding the role of cognition and metacognition in the development of scientific thinking. The difference lies only in their ability to argue what the essence of this role is and how this relationship is mediated. Primarily, the term *knowledge* (229 expressions). emerges as a common component facilitating scientific thinking's development, acting as a mediator between cognition, metacognition, and scientific thinking. As a result, scientific knowledge emerges as a superior structure, as a product of this interrelationship. The reflection mode with subjective or objective orientation is also reflected through knowledge. Understanding through metacognition how things are reflected allows the respondents to analyze possible errors, find solutions and self-instruct to progress in the context of the development of scientific thinking. Objective knowledge stimulates the development of cognition, while metaknowledge favors the development of metacognition. In common terms, this would sound like *knowing about what you don't know* or *knowledge about ignorance*.

This relationship between knowledge and metaknowledge in the context of scientific thinking allows the individual to persevere and

break out of existing paradigms, offering the individuals engaged in scientific thinking the opportunity to think differently, divergently, unconventionally, approaching things from various perspectives. Another element mentioned by respondents is the word *development* (86 expressions), which is most often expressed with meanings of developing capacities or competencies, cognitive abilities, scientific thinking, developing critical thinking. In the context where the respondents' style of expression is more argumentative, the term *development* appears in the semantic analysis of the text as a natural process followed by the term *metacognitio*n (264 expressions). Metacognition is represented as a *psychological process* (168 expressions) integral to fostering scientific thinking as most frequently expressed by subjects.

Item 7. What strategies do you employ to foster scientific thinking in students during non-formal activities? The analysis reveals defining elements that pedagogues associate with applying scientific knowledge to resolve everyday challenges. Among the concepts frequently mentioned, *development* (96 expressions) emerges prominently, in which subjects present through activities that develop creativity, imagination, intellect, self-confidence, etc. The second notion evoked by subjects was *game* (78 expressions), didactic, interactive, and role-playing games. Didactic play is used by most respondents as a fundamental didactic method for developing scientific thinking in students, *project* (48 expressions) specifically research projects, both individual and group, are also highlighted as essential methods. The notions of *visit* (40 expressions) and *excursions* (39 expressions) are used by subjects as some of the basic methods for applying scientific knowledge to solve everyday problems. *Involvement* (38 expressions) is invoked by subjects to denote any activity directed and guided by the teacher in which students work independently. The concept of *problem* (37 expressions) is used for problematization activities. Elements of *group activities* (36 expressions) and *communication* (34 expressions) imply collective activities related to interaction and collaboration, involving communication. *Extracurricular activities* (35 expressions) involve students in everyday contexts. Communication is presented by respondents in two aspects: the first aspect refers to communication as a skill, and the second refers to communication as a necessary resource for development, including communication training for students, communication with parents as support in the cultural acceptance of the need for scientific education. *Experiment* (29 expressions) is used by subjects to denote the exercise of basic competencies in applying scientific knowledge to solve everyday problems. Other concepts like *circle* (28 expressions), *problem-solving* (26 expressions), *interest* (24 expressions), and *museum* (23 expressions) were also articulated by the

respondents.

Item 8. Which personality traits do you believe influence the enhancement of scientific thinking/its development in students?

The prevalent traits identified by respondents as contributing to the development of scientific thinking in students include: *self-confidence* (91 expressions), *creativity* (69 expressions), *self-esteem* (64 expressions), *capability* (49 expressions), *critical and analytical thinking* (47 expressions), *responsibility* (46 expressions), *courage* (40 expressions), *curiosity* (36 expressions), *motivation and enthusiasm* (35 expressions), *intelligence* (34 expressions), *perseverance* (33 expressions), *openness* (31 expressions), *sociability* (27 expressions), *optimism* (23 expressions), *independence* (17 expressions), *objectivity* (17 expressions), *assertiveness* (13 expressions), *pragmatism* (12 expressions), *enthusiasm* (10 expressions). From the insights gathered from teachers, a comprehensive profile delineating the essential personality traits contributing to the effective cultivation of scientific thinking in students has been compiled. In total, teachers have identified 18 personality traits that, in their opinion, can contribute to the development of scientific thinking in students. By organizing and prioritizing these traits according to their frequency of mention, we've discerned the pivotal characteristics deemed indispensable for a student's advancement in fostering scientific thinking, as per teachers' perspectives.

Item 9. What are the crucial conditions for the development of scientific thinking in students?

Respondents have cited the following conditions, taking into account the previously mentioned support methods, from which we will abstract. Most subjects have named conditions related to the development of critical thinking, which they know and largely apply in their practical activities: Establishing learning environments conducive to practicing critical thinking processes and allowing adequate time for such activities; Encouraging independent thinking, speculation, and reflection among students; Accepting diversity of opinions and ideas within the learning space; Actively engaging students in collaborative learning, promoting cooperative problem-solving approaches; Creating a safe environment where students feel secure expressing their opinions without fear of ridicule. Demonstrating belief in each student's capacity for critical thinking. Positively reinforcing instances of critical thinking exhibited in various learning scenarios; In addition to these, there is rigorous teacher preparation, correct guidance of students, stimulation of student interest, and adherence to certain psychopedagogical conditions (emphasis on interdisciplinarity; stimulation of self-confidence, self-respect, etc.).

Item 10. What recommendations or proposals do you have for

enhancing scientific thinking in students within their academic disciplines? The analysis of this item has revealed key insights into the aspects emphasized by pedagogues when applying scientific knowledge to address teaching and learning challenges. Among the most frequently mentioned concepts, *intellect* (664 expressions) stands out, indicating a significant focus on cognitive capacities. This is closely followed by *action* (409 expressions), then *education and teaching* (372 expressions), *fundamental concepts* (293 expressions), *school context* (119 expressions), the *human factor* (97 expressions), *temporal aspect* (85 expressions), *willingness* (62 expressions), *dosage and processing capacity of information* (41 expressions), *affectivity* (33 expressions), etc.

The examination of proposals aimed at fostering scientific thinking across disciplines and honing competencies in applying scientific knowledge to address teaching and learning challenges provides insights into pedagogues' emphasis on enhancing intellectual capacities. This orientation effectively supports the goal of cultivating scientific thinking among students. Intellectual capacities, accomplishing the task of developing scientific thinking in students.

The most frequently evoked concept is *intellect*, appearing 664 times, suggesting special attention given to the development of cognitive abilities and intellectual processes in the learning process. Next is the concept of *order and measure* with 525 mentions, indicating the importance of structuring and organizing information and activities in the learning process.

The concept of *action* is mentioned 409 times, emphasizing the necessity of active involvement and effective practice in the development of scientific thinking. *Education and teaching* are mentioned 372 times, reflecting the focus on the educational process and the transmission of knowledge and skills in the development of scientific thinking.

The notion of *fundamental concepts* appears 293 times, suggesting the importance of understanding and applying basic principles and concepts in the development of scientific thinking. The *school* context is mentioned 119 times, highlighting the importance of the influence of the school environment and social relationships in the development of scientific thinking in students.

The *human factor* is mentioned 97 times, indicating the importance of the involvement and interaction of individuals in the learning process. The *temporal aspect and willingness* are mentioned 85 and 62 times, respectively, emphasizing the importance of time management and motivation in the development of scientific thinking. *Dosage and the capacity to process information* are evoked 41 times, highlighting the need for an appropriate approach to presenting and processing

information in the learning process. *Affectivity* is mentioned 33 times, underlining the influence of emotions and affective states on the development of scientific thinking.

While the sequence of emphasis varies, the internal factors like knowledge, critical thinking, and creativity take precedence. External aspects such as interactive methods, skill development, and school environment are also deemed significant. However, the discussion lacks concrete strategies to integrate scientific knowledge effectively into practical problem-solving within the educational framework.

Item 11. Provide a succinct and essentialized portrait of the teacher who possesses a high level of scientific thinking. The analysis of competencies mentioned by subjects regarding the facilitation of scientific thinking formation among colleagues has allowed the clarification of aspects related to the professional profile of an educator who demonstrates scientific thinking: *open-minded* (48 expressions), *creative* (34 expressions), *efficient* (33 expressions), *skilled* (32 expressions), *competent* (31 expressions), *confident* (29 expressions), *works with relevant information* (28 expressions), *articulates thoughts clearly* (24 expressions), *objective* (21 expressions), *professional* (20 expressions), *logical* (19 expressions).

Analysis of the relevant competencies, in response to item 11, brings to the forefront a detailed portrait of the teacher who embodies scientific thinking.

Firstly, a teacher oriented towards the development and enhancement of scientific thinking is receptive to new ideas, innovative methodologies, and changes in their field of expertise. They are not confined to what they already know but are willing to explore and integrate new concepts into their educational practice. Creativity serves as a cornerstone in fostering scientific thinking, enabling the exploration of unconventional solutions and encouraging divergent thinking among students. Efficient teaching involves not just technical prowess but also strong interpersonal skills, allowing effective content delivery that maximizes understanding and engagement. A "good" teacher, is seen as a mentor and role model, capable of efficiently imparting solid knowledge to students. This aspect indicates that the teacher not only possesses solid knowledge but also efficiently imparts it to students.

Self-confidence can significantly influence the impact of a teacher. Confidence in manifesting scientific thinking can inspire and instill confidence in students in their own ability to think scientifically. A teacher with a high level of scientific thinking understands the importance of relevant information. This indicates the ability to select and use essential information to support the educational process. This, in turn, facilitates a teacher's ability to express complex ideas in an

accessible and intelligible manner, be objective, and stimulate critical thinking and neutral evaluation of information.

These qualities culminate in professionalism, fostering mutual respect between teacher and students. A professional teacher prioritizes both academic and personal growth, shaping students into independent thinkers. Lastly, logical thinking guides students toward structured and reasoning-based thought processes, essential in a teacher embodying scientific thinking.

By analyzing these expressions (mentions), we obtain a detailed picture of the qualities and competencies inherent in a teacher with scientific thinking, underscoring their significance in the educational sphere. These characteristics not only improve the learning process but also contribute to forming a scientific mindset among students.

However, the limited awareness among some respondents reaffirms the prevailing lack of openness regarding the necessity for interventions to enhance teachers' scientific thinking and foster its development among students. There exists a lack of clarity on the methodologies or strategies required for this enhancement, posing uncertainties about potential interventions, their scope, and the associated opportunities and perspectives**.**

Discussion

The examination of pedagogues' perspectives on scientific thinking reveals several noteworthy insights. Scientific thinking is predominantly viewed as both a cognitive process and a human capacity, encompassing critical, structured, and rational analysis. The understanding extends to logical reasoning, incorporating induction, deduction, and other higher-order thinking processes. Elements intrinsic to the scientific method such as observation, experience, and research, are integral to this conception. Notably, pedagogues stress the importance of methodical and systematic application of characteristics like objectivity, accuracy, and rationality in fostering scientific thinking. Pedagogues view scientific thinking as a cognitive process involving critical and rational analysis, consistent with Dewey's emphasis on practical activity Dewey (1997). Moreover, the importance of logical reasoning, induction, deduction, and higher-order thinking processes resonates with the views presented by Kuhn (2002) and Popper (2002).

Facilitating curiosity and wonder involves abstract language and an emphasis on problematization methods. While experiments are recognized, there is a notable gap in detailing their effective application. Pedagogues highlight various activities like projects, games, and discovery-based learning to consolidate teams and stimulate curiosity. The pedagogues stress the significance of

methodical and systematic application of characteristics like objectivity and accuracy, aligning with Zimmerman's emphasis on the operational character of scientific thinking (Zimmerman, 2007).

Supporting scientific thinking development is expressed through the intent to develop skills via modern teaching methods, idea generation, and student involvement. However, the practical application, especially concerning the experimental method, remains somewhat elusive.

Pedagogues cite a plethora of methods for scientific thinking development, encompassing problematization, games, case studies, and experiments. While some draw from personal experience, others list methods they believe could contribute, lacking detailed practical applications.

In linking cognition, metacognition, and scientific thinking, knowledge emerges as a common thread. Metacognition is presented as a psychological process significantly contributing to scientific thinking development.

Non-formal activities focus on creativity, imagination, and intellect development, often through didactic games, projects, and excursions. Personality traits such as self-confidence, creativity, and critical thinking are identified as crucial contributors to efficient scientific thinking development in students.

Conditions for development involve creating critical thinking situations, encouraging independent thought, accepting diversity, and actively involving students. Rigorous teacher preparation and adherence to psychopedagogical conditions are underscored.

In proposing methods across disciplines, emphasis is placed on promoting intellectual capacities, active involvement, and understanding fundamental concepts. The profile of a teacher fostering scientific thinking is characterized by professional competence and personal attributes, including open-mindedness, creativity, and logical thinking.

In summary, the insights from pedagogues provide a nuanced understanding of scientific thinking, stressing both theoretical understanding and the practical application of diverse methods. The identified gaps suggest opportunities for further exploration and refinement in pedagogical practices.

Conclusion

Teachers need specific knowledge and set of skills for effective pedagogical professionalization concerning the development and enhancement of scientific thinking. This includes a comprehensive grasp of scientific thinking as both a cognitive process and a human capacity, involving critical, structured, and rational analysis. This includes knowledge of logical reasoning, induction, deduction, and

higher-order thinking processes. Familiarity with the components of science, such as observation, experience, and research, is important. Methodical and systematic application of characteristics like objectivity, accuracy, and rationality is emphasized. Additionally, teachers should possess skills in abstract language, problematization methods, and the effective application of experiments.

These skills, fostered through modern teaching methods and active student engagement, are fundamental for teachers committed to fostering scientific thinking among their students.

Teachers use abstract language, problematization methods, and recognize the importance of scientific thinking. Various activities like projects, games, and discovery-based learning are employed to consolidate teams and stimulate curiosity. Teachers support scientific thinking development by intending to develop skills through modern teaching methods, idea generation, and student involvement. However, there's a noted gap in detailing the effective application of experimental methods.

Pedagogues employ diverse methods for fostering scientific thinking, including problematization, games, case studies, and experiments. While some draw from personal experience, others propose methods without detailed practical applications. Knowledge is identified as a common thread in linking cognition, metacognition, and scientific thinking. Metacognition is highlighted as a psychological process contributing significantly to scientific thinking development. Non-formal activities focus on creativity, imagination, and intellect development through didactic games, projects, and excursions. Personality traits such as self-confidence, creativity, and critical thinking are crucial contributors. Conditions for development involve creating critical thinking situations, encouraging independent thought, accepting diversity, and actively involving students. Rigorous teacher preparation and adherence to psych pedagogical conditions are underscored. Proposed methods across disciplines emphasize promoting intellectual capacities, active involvement, and understanding fundamental concepts. The profile of a teacher fostering scientific thinking is characterized by professional competence and personal attributes, including open-mindedness, creativity, and logical thinking. The identified gaps suggest opportunities for further exploration and refinement in pedagogical practices.

Recommendations

The participant group of this study consists of pedagogues working and living in Republic of Moldova and Romania. Therefore, it is recommended to broaden the scope of future studies by including participants from various countries. Future research initiatives should

consider a more globally representative participant pool, contributing to a broader and more universally applicable understanding of the subject. This expansion would not only enhance the external validity of the study but also contribute to a more nuanced and globally applicable perspective on the subject matter. This study covers the motherhood experiences of the scientific thinking skills. While this study delves into the perspectives of educators on scientific thinking skills, a valuable extension could be a study focusing on the educational needs of participants. Carrying out a comparable study with participants involving students of varying age groups would enhance the comprehensiveness of the results. Consistent with the study's findings, it becomes evident that pedagogues also require support in the development of their scientific thinking skills, suggesting potential areas for further research and professional development.

Limitations

The scope of the study is confined to participants residing in the Republic of Moldova and Romania, thereby delineating certain limitations. One primary constraint lies in the geographical specificity, as the findings may not be immediately generalizable to individuals from other regions or countries. The cultural, educational, and contextual factors inherent to Moldova and Romania may contribute unique nuances to the participants' experiences, potentially limiting the applicability of the study's conclusions to a broader international context. Moreover, the restriction to participants solely from the Republic of Moldova and Romania also raises questions about the transferability of the findings to educational systems with distinct structures and practices. Each country possesses its distinct own educational policies, curriculum frameworks, and pedagogical approaches, potentially limiting the study's ability to fully encompass the intricacies of other educational landscapes.

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Appendix

Table 1. Indicators and Descriptors for the Development and Enhancement of Scientific Thinking in Pedagogues

Nr.	Indicators	Descriptors of the development and efficiency of scientific thinking in pedagogues		
		Inferior level (1)	Middle level (2)	Superior level (3)
1. Knowledge				
1.1	Knowledge of the basic concepts of scientific thinking (item 1 and 2)	Explain 2-4 scientific concepts correctly (regarding scientific thinking)	Explain 5-7 scientific concepts correctly (regarding scientific thinking)	Explain 8-10 scientific concepts correctly (regarding scientific thinking)
1.2	Representations regarding the role of cognition and metacognition in the development of scientific thinking (item 6)	Know and characterize 1-2 components of cognition and metacognition and explain their role in the development of scientific thinking	Know and characterizes 3-4 components of cognition and metacognition, explaining their role in the development of scientific thinking	Know, explain and characterizes the components of cognition and metacognition and their role in the development of scientific thinking
1.3	Knowledge regarding the creation of conditions for the development of scientific thinking in students (item 4, 9)	Name 1-2 necessary conditions to be met to facilitate the development of scientific thinking in students	Identify the conditions that must be met to facilitate the development of scientific thinking in students, for each age stage	Identify the conditions that must be met to facilitate the development of scientific thinking in students for each age stage (mentions practical proposals)
2. Application				
2.1	Development of strategies (forms, methods, procedures, techniques) for the development of students' scientific thinking (item 5)	Name 1-2 methods and procedures focused on the development of scientific thinking in students	Identify forms, methods and procedures in the development of scientific thinking in students, taking into account the specific age (consistently explains each method	Elaborate methodical strategies for the development of scientific thinking in students, taking into account the specific age (consistently explains each form presented, explaining its influence on the

			presented)	development of scientific thinking)
2.2	Determining the personality traits that would facilitate the development of scientific thinking in students (item 8)	Name 1-2 personality traits necessary to facilitate the development of scientific thinking in students	Name 3-4 personality traits necessary for the development of scientific thinking in students, explaining the ways of modeling student behavior according to certain personality traits	Characterize the personality traits necessary for the development of scientific thinking in students, explaining the ways of modeling the behavior of students according to certain personality traits and the specific age
2.3	Developing the sense of curiosity and satisfaction in students to develop scientific thinking (item 3)	Know some methods of stimulating curiosity in children (shows 1-2 methods).	Systematically use 3-4 methods of developing a sense of curiosity and intellectual satisfaction in students	Use a set of methods to develop a sense of curiosity and wonder in students, also mentioning the specifics of the activity, didactic games, age-specific. Give details or present your own strategy used
3. Integration				
3.1	Competences to apply scientific knowledge to solve teaching/learning problems (item 10)	Mention 1-2 proposals for applying scientific knowledge in school practice	Proposes 4-5 strategies for applying scientific knowledge in school practice	Propose a project containing strategies, practical solutions for applying scientific knowledge in school activities
3.2	Competencies to facilitate the development of scientific thinking in self and colleagues (training of trainers, lifelong learning) (item 11)	Elaborate 1-2 suggestions on facilitating the training of scientific thinking in colleagues/teachers	Elaborates a set of activities regarding the facilitation of the formation of scientific thinking among colleagues (in which it briefly describes some aspects of the	Elaborate an Agenda for promoting the development of scientific thinking among colleagues (in which it briefly describes the strategies for the development of scientific thinking,

			development of scientific thinking)	including methods of training scientific thinking, glossary of scientific terms, etc.)
3.3	Competences to apply scientific knowledge to solve existential / everyday problems (item 7)	Mention 1-2 proposals for applying scientific knowledge in daily / existential practice	Proposes 4-5 strategies for applying scientific knowledge in daily practice	Propose a project that contains strategies, practical solutions for applying scientific knowledge in everyday activity

CHANGES IN THE USAGE OF LEXICAL BUNDLES IN THE FIELD OF EDUCATION DURING THE LAST 20 YEARS

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Abstract: *Formulaic language contributes to demonstrating membership in a specific discourse community. However, the norms of a specific language community tend to change over time, which adds to the complexity of academic writing. Therefore, the aim of this paper is to explore the changes in the usage of lexical bundles in scientific papers in the field of education over the last 20 years. The focus is on lexical bundles, multi word sequences that recur frequently and are distributed widely across different texts. As a prominent feature of any text, exploring their usage and change over time brings insight into the changes which occur in the academic writing style. The results showed a decrease in the usage of lexical bundles over time. Statistically significant differences were found in the structural and functional usage of lexical bundle tokens for both groups and subgroups. This indicates that the concrete bundles used over time have not significantly changed but only the frequency of their usage.*

Keywords: *lexical bundles; corpus linguistics; Academic English.*

1. Introduction

With his work Swales (1990) rekindled the interest of the linguistic academic community in exploring the concept of genre which in turn made analysis of academic discourse a popular topic once again. As a result, structures and functions of academic discourse became a prominent subject of analysis in contrastive and corpus linguistics. Apart from word lists and collocations, lexical bundles became a significant element in the literature which deals with the analysis of academic discourse.

Grammar is based on the principle of open choice of lexical units, but there is another important principle for combining words - the idiom principle, which indicates that a large number of preconceived word

combinations exist within a certain register (Sinclair 1991 according to Nam, 2017). Collocations represent the exploration of lexical combinations which are idiomatic in nature while the study of lexical bundles enables us to explore lexical combinations which are idiomatic and which are not (Nam, 2017). Lexical bundles in different communication registers open up a possibility to gain further insight into how the language is formed in certain genres, disciplines and linguistic communities. Their function was further clarified by Biber and his colleagues in the following way: „In general, these lexical bundles serve as discourse framing devices: they provide a kind of frame expressing stance, discourse organization or referential status, associated with a slot for the expression of new information relative to that frame“ (Biber et al. 2004: 400).

Lexical bundles have been defined in different ways:

- “extended collocations: bundles of words that show a statistical tendency to co-occur” (Biber et al. 1999: 989);
- “recurrent lexical sequences (e.g., take a look at, know what I mean) identified through corpus analysis that includes specific frequency thresholds and dispersion requirements” Pan et al. (2016: 60);
- “extended collocations which appear more frequently than expected by chance, helping to shape meanings and contributing to our sense of coherence in a text” (Hyland 2008a:41).

The initial studies on lexical bundles analysed their presence and usage in different registers and genres. Biber at al. (1999) explored the usage of lexical bundles in conversation, fiction, press and academic discourse. They found that lexical bundles are present to varying degrees in each of these registers and that their structural and functional usage is also different. The second wave of studies focused on analyzing the usage of lexical bundles in different academic fields. Hyland (2008b) explored the usage of lexical bundles in academic texts (academic papers, Master’s theses and doctoral dissertations) in four different fields of study (electrical engineering, biology, business studies and applied linguistics). All of the fields showed different tendencies for using lexical bundles, which further highlighted the role that lexical bundles play in expressing belonging to a certain language community. After Hyland’s (2008b) pioneering work other researchers explored how lexical bundles are used in almost all other academic fields such as medicine (Jalali et al. 2014), chemistry (Kashiha & Heng 2014), psychology (Esfandiari & Barbary 2017), physics (Farvardin 2012), etc.

Once the characteristics of lexical bundle usage in various academic

fields had been determined, the next logical questions posed by researchers were how do varying levels of language proficiency influence the usage of lexical bundles and do native and non-native speakers differ in their usage. Numerous studies (e.g. Cortes 2004, Staples et al. 2013, Bychkovska & Lee 2017) looked at learner usage of lexical bundles in comparison to expert writers, but also compared the output of learners with varying levels of proficiency in regards to their lexical bundle usage. It has been established that learner proficiency influences the usage of lexical bundles. Higher proficiency learners tend to use fewer bundles and lower proficiency learners tend to gravitate towards using more verb-based bundles which are usually the least frequent structural category in the academic context (Staples et al. 2013). The studies which explored how native and non-native speakers use lexical bundles also started from exploring lexical bundle usage in language learners (Appel & Murray 2020, Cortes 2004, Bychkovska & Lee 2017) but later widened their field of research to include expert non-native speakers (Lazić 2017, Pan et al. 2016, Salazar 2014). Most studies of expert native vs. non-native speaker lexical bundle usage showed that non-native speakers use more lexical bundles and that the main differences in structural and functional usage tends to be in the prominence of various subcategories.

The study of lexical bundle usage over time is a branch of research which has still not been well explored (Hyland & Jiang 2018). This paper aims to enrich this direction of lexical bundle research by looking at the changes in lexical bundle usage in educational scientific articles over a period of 20 years, namely from 2001 to 2020. Apart from the fact that our paper explores the changes of lexical bundles over time in a context which has not been researched in this way before, we consider our paper to be significant because it takes into account whether articles were written by native or non-native speakers during the corpus formation phase, which has not been done before in studies which explore lexical bundle changes over time.

2. Previous research of lexical bundles in the field of education

The usage of lexical bundles in the field of education has been studied from a variety of different perspectives:

- the usage of lexical bundles in different educational registers such as classroom teaching, textbooks and academic prose (Biber et al. 2004),
- the usage of lexical bundles in learner writing (Chen & Baker 2010, Nam 2017, Shin 2019),
- the differences in the usage of lexical bundles is scientific articles in the area of education by native and non-native speakers (Güngör & Uysal 2016, Güngör 2016, Güngör 2019),

- paradigmatic influences on the usage of lexical bundles in scientific articles in the field of education (Candarli & Jones 2019),
- changes in the usage of lexical bundles over time in doctoral dissertations in the field of education (Cui & Kim 2021) etc.

As it has been previously shown, lexical bundles greatly vary when it comes to genre and educational field (Hyland 2008b). The study conducted by Biber and colleagues (2004) showed that differences are also prominent when we analyze different registers in the same field. In their study they compared lexical bundles used in classroom teaching and textbooks which they compared to bundles found in conversations and academic prose. The results showed that classroom teaching uses a larger number of different lexical bundles while conversation uses a smaller set of bundles but much more frequently. The bundles present in classroom teaching are associated with both spoken and written registers. A smaller number of lexical bundles is used in textbooks than in classroom teaching and this may be attributed to the mode of presentation i.e. oral or written. This research and section of research in general shows us the importance of analyzing each segment of academic prose for gathering a more comprehensive understanding of its functioning.

In his doctoral dissertation and two more studies Güngör (Güngör & Uysal 2016, Güngör 2016, Güngör 2019) explored the usage of lexical bundles in scientific articles in the field of education by native and non-native speakers. In all of the above-mentioned studies the L1 of the non-native speakers is Turkish. Here in more detail, we will describe the study Güngör & Uysal (2016) since it is the most similar to our study in terms of research design. Two corpora of about half a million words were formed for the needs of the research. One consisting of academic articles in the field of education written by native speakers of English and the other consisting of academic articles written by non-native speakers. In the native speaker corpus 32 four-word lexical bundles were identified while in the non-native corpus the number of identified lexical bundles was 98.

The results indicate that the most prominent structural category in the native speaker corpus was the prepositional phrase-based bundles (50%) followed by noun phrase-based bundles (40.63%), while verb phrase-based bundles and other structures were less frequent (6.25% and 3.12% respectively). In the non-native speaker corpus, the division of lexical bundles in structural categories looks quite different. The most prominent structural category was verb phrase-based bundles (33.67%) closely followed by noun phrase-based bundles (31.63%), while preposition-based phrases and other structures were less

frequently used (24.50% and 10.20% respectively). The functional analysis also showed differences in the usage of lexical bundles by the two groups of speakers. Namely, native speakers used research-oriented bundles (68.8%) most frequently, while non-native speakers used text-oriented bundles most frequently (66%). Both corpora share 13 lexical bundles. It may be concluded that although the non-native speakers used more bundles, they did not use the bundles present in the native speaker corpus frequently enough.

Candarli & Jones (2019) explored whether, in the field of education, there exist differences in the usage of lexical bundles in studies which implement the qualitative or quantitative approach i.e. explored the effect of paradigmatic influences. As Gray (2015:6 as cited in Candarli & Jones 2019) stated "little attention has been paid to the possibility that research articles themselves are not a monolithic concept" and the aforementioned study aimed to contribute to the correction of this oversight by revealing intra-disciplinary variations in the use of lexical bundles. The results of the research indicated that a larger number of lexical bundles were found in the corpus with quantitative research articles than in the corpus with qualitative research articles. The structural analysis showed differences in the two corpora. Namely, in the quantitative corpus the most prevalent bundles were PP-based followed by VP-bundles and in the third position NP-bundles, while in the qualitative corpus PP-bundles were followed by NP-bundles and VP-bundles in the third place. In regards to the functional distribution of lexical bundles it was found that in both corpora referential expressions were the most prevalent followed by stance expressions and discourse organizers. All three functional categories were significantly more frequent in the quantitative corpus. The findings of this study indicate that the paradigm variable is significant when the usage of lexical bundles in research articles is explored and that there might be a need to include it as a factor in further studies.

2.1.Previous research of lexical bundles over time

Hyland & Jiang (2018) were one of the first researchers to explore how lexical bundles change over time. They explored the changes in the usage of lexical bundles over a span of 50 years by selecting three specific years in which the usage of bundles was analyzed: 1965, 1985 and 2015. The usage of lexical bundles was investigated in scientific articles in four different fields: applied linguistics, sociology, electrical engineering and biology. The corpora for the study were built by selecting 30 articles from each field for each of the three time periods from five prominent journals in the specific field.

The results of the study showed a decrease in the usage of lexical bundles in the in the fields of sociology and biology, while an increase

was noted in the fields of applied linguistics and engineering. The structural analysis of the data showed that even though noun/preposition-related bundles accounted for the overwhelming proportion of bundles, they were also the category which had shown the largest overall decline, while the number of bundles containing verb phrases had risen. The most prominent change in the functional usage of lexical bundles in this study was the decrease of research-oriented bundles, increase of participant-oriented bundles in the hard sciences and a decrease of the usage of participant-oriented bundles in the soft sciences.

Another article which studied the changes in the usage of lexical bundles over time is Cui & Kim (2021). This study is closely related to our research for two reasons: 1. because it explored the usage of lexical bundles over the same two time periods that will be explored in this study, namely, 2001-2010 and 2011-2020; 2. because it investigated the field of education. However, their research corpora were comprised of doctoral dissertations in the field of English language teaching while the corpora in this study consist of scientific articles in the field of education. The corpora for each time period are comprised of 30 dissertations in the field of English language teaching. The 2001-2010 corpus consists of 1,200,689 words, while the 2011-2020 corpus consists of 1,189,404 words. A peculiar feature of this research is the length of lexical bundles explored. The researchers opted to analyse 3-, 4- and 5-word lexical bundles, even though the analysis of 4-word lexical bundles is the most common in this field (Chen & Baker 2010, Pan et al. 2016, Bychkovska & Lee 2017). For the identification of lexical bundles, the minimal frequency of 20 occurrences, dispersion in at least 5 texts and an MI score no lower than three were the selection criteria. The implementation of the MI score for the identification of lexical bundles is also not frequently implemented in lexical bundle research.

Lexical bundles in the two time periods were compared in reference to the bundle length, structural and functional categorizations. A statistically significant difference was found for all three lexical bundle lengths. Three- and five-word lexical bundles became more frequently used over time while the usage of four-word lexical bundles decreased.

As in the previous studies which analysed the structure of lexical bundles in educational texts the results of this study showed that noun and preposition-based bundles were more commonly used than verb-based bundles. In the 2001-2010 Corpus noun-based bundles made up 53% and preposition-based bundles made up 35% of all bundles, while in the 2011-2020 Corpus noun-based bundles made up 57% and preposition-based bundles 29% of bundles. The study has shown that the number of nouns based and verb-based bundles has increased in the

last twenty years while the usage of preposition-based bundles has decreased.

When it comes to the functional analysis of the lexical bundles the results showed that in both corpora research-oriented bundles were the most frequent (2001-2010 Corpus 68.3%, 2011-2020 Corpus 72.7%) followed by text-oriented bundles (2001-2010 Corpus 30.4%, 2011-2020 Corpus 26.6%). Participant-oriented bundles were the least frequent in both corpora (2001-2010 Corpus 1.3%, 2011-2020 Corpus 0.7%). As may be seen from the data above, over the last two decades the usage of research-oriented bundles has increased while the usage of text and participant-oriented bundles has decreased. Cui & Kim (2021) analysed the 100 most frequent lexical bundles in more detail and found that only 59 were found in both corpora. Such a finding indicates that the bundles in the area of education are changing quickly in response to new conditions and contexts.

3. Corpus and Methodology

The aim of the study is to explore the change in the usage of lexical bundles over time in a specific scientific register and field. The selected register is scientific papers and the field is education. The explored time period is the past two decades from 2001 to 2020.

Two corpora were created for the purposes of the study. Each of the corpora cover a period of 10 years, the first corpus covers the time period from 2001 to 2010 while the second corpus covers the time period from 2011 to 2020. The corpora are comprised of scientific articles in the field of education. Care was taken that both corpora be of the approximately same size (half a million words) and consist of a similar text number so that the results gathered from each corpus could be easily comparable. Please find detailed information regarding corpora size in Table 1 below.

Table 1. *Corpus information*

	2001-2010 Corpus	2011-2020 Corpus
Word tokens	500,142	500,985
Number of articles	91	90
Average article length	5497	5567
Standard deviation of article length	2227	1799

Specific for the corpora in this study is the fact that the factor of native vs. non-native speaker was taken into account in the corpus formation process. 23% of each corpus consists of scientific articles written by non-native speakers and 77% of articles written by native speakers. The identification of the authors' mother tongue was done using the

working definition proposed by Wood (2001) which indicates that the author must have a typical name for the target language and be associated with an institution in the country where the target language is the official language. For articles with more than one author the name and institution of the first author was checked and if the first author met the abovementioned criteria the paper was included in the corpus.

The corpus analysis program used in this study is AntConc (Anthony, 2013). For the identification of four-word lexical bundles the minimal frequency of 20 occurrences in a million words is set together with a minimum dispersion in 10% of texts (Hyland, 2008). Once the lists of bundles for each corpus are finalized common lexical bundles are identified. Statistical analysis is implemented to check whether possible differences in the number of lexical bundles used in the two time periods are significant.

The next step in the research is the division of the identified lexical bundles into structural and functional categories and the performance of statistical tests to see whether the differences identified are significant. For the structural classification of bundles this study implements the taxonomy proposed by Biber et al. (1999) while the taxonomy proposed by Hyland (2008a) is used for the functional classification. There is often a functional overlap between lexical bundle categories (Biber et al 2004, Chen & Baker 2010) and the same lexical bundle may be categorized in more than one functional category. Because of this, the bundles in our study are categorized in accordance with the most prominently used function of the particular bundle in our corpora. This was accomplished through a detailed analysis of the concordance lines of the identified lexical bundles.

In order to examine if there are any differences, i.e., association, between different corpora in structural and functional distribution of the bundles, a chi-square test of independence is used. For all significant tests, adjusted standardized residuals are calculated in order to determine which cells have the highest deviations from expected frequencies and an absolute value of 1.96 is used as an indicator of statistically significant residuals. In total, 8 chi-square tests were run, for structural groups and corpora, for structural subgroups and corpora, for functional groups and corpora and for functional subgroups and corpora. Tests were run for tokens (total frequencies of bundles) as well as for types (number of specific bundles) appearing in different corpora.

4. Results

Once the identification criteria had been implemented 96 lexical bundle types and 1911 tokens were identified in the 2001-2010 corpus,

while 89 lexical bundle types and 1730 tokens were identified in the 2011-2020 corpus. The lists were then refined by removing content specific bundles and merging four-word bundles which form one five-word bundle. In the 2001-2010 corpus 5 lexical bundles were removed because they were content specific (*the ministry of education, in the united states, education in New Zealand, in the New Zealand, department of education and),* 2 bundles were removed because they were incorrectly identified due to the fact that the program AntConc does not take into consideration numbers (*in the early s, in the late s*), 13 four-word-bundles were merged into 5 five-word-bundles and 1 six-word-bundle (*at the end of (the), (of) the quality of the, (the quality) of teaching and learning, in the context of (the), to the development of (the), (to) meet the needs of*) and 2 bundles were merged because they were the same except a different article was used (*in the/a number of).* In the 2011-2020 corpus 4 lexical bundles were removed because they were content specific (*the ministry of education, in the united states, in the New Zealand, ministry of education and),* 1 bundle was removed because it was incorrectly identified (*et al found that*), 14 four-word-bundles were merged into 7 five-word-bundles (*at the end of (the), as a result of (the), it is important to (note), (for) the purpose of this, at the beginning of (the), are more likely to (be), is one of the (most)*), 4 bundles were merged because they were the same except a different article was used (*as well as the/a, the development of the/a)* and 2 bundles were merged because they were the same except for the singular or plural version of the auxiliary verb (*have/has the potential to).* The final number of lexical bundles in the two corpora can be seen in Table 2 below. From these results we can see that the usage of lexical bundles has decreased over time in scientific articles in the area of education, which is in line with previous research which showed that the usage of 4-word-bundles decreased over time in doctoral dissertations in the field of English language teaching.

Table 2. *Number of lexical bundle types and tokens in the two corpora*

	2001-2010 Corpus	2011-2020 Corpus
Lexical bundle types	83	73
Lexical bundle tokens	1621	1427

Corpus specific bundles, i.e., bundles only present in one corpus, and bundles which were found in both corpora are presented in Appendix 1. There were 31 identical shared bundles, 52 bundles specific to the earlier corpus and 42 bundles specific to the later corpus. However, to the shared bundles we would also add the ones which differ due to the merging of bundles during the refinement process. For example, the bundle *as a result of* in the 2001-2010 Corpus and *as a result of (the)*

in the 2011-2020 Corpus would be added to the list of shared bundles. In this way 14 lexical bundles were added to the shared bundles list (they are put in italics in the appendix 1.). Therefore, the final list consists of 45 shared lexical bundles, 38 bundles specific to the 2001-2010 Corpus and 28 bundles specific to the 2011-2020 Corpus.

During the comparison of the two lists, it was interesting to find two pairs of bundles with the same meaning but which differ stylistically. In the earlier corpus the lexical bundles *a wide range of* and *the degree to which* were identified, while in the later corpus *a broad range of a*nd *the extent to which* were identified. Such details might give us insight into how the popularity of certain expressions is changing.

Differences between corpora based on structural groups – types

There were no significant differences between corpora on structural groups based on bundle types (Table 3), χ^2 (3, N =156) = 1.95, p = .583.

Table 3. Crosstabs between corpora and structural groups (types)

	2001-2010 (%)	2011-2020 (%)
Noun phrase based	30.1	24.7
Prepositional phrase based	49.4	46.6
Verb phrase based	18.1	23.3
Other structures	2.4	5.5
Total	100.0	100.0

Differences between corpora based on structural groups – tokens

There were statistically significant differences in total bundle frequency (tokens) between corpora on structural groups (Table 4.), χ^2 (3, N =3048) = 34.54, p < .001.

Table 4. *Crosstabs between corpora and structural groups (tokens)*

	2001-2010 (%)	2011-2020 (%)
Noun phrase based	31.1	22.9
Prepositional phrase based	49.2	50.9
Verb phrase based	16.2	20.5
Other structures	3.6	5.7
Total	100.0	100.0

Interpretation of adjusted standardized residuals (Table 5.) indicates that there are differences on all structural groups except prepositional phrase-based bundles which are represented in both corpora in very similar proportions. The 2001-2010 Corpus had more noun phrase-based bundles, while later corpus had more verb phrase based and other structure bundles.

Table 5. *Adjusted standardized residuals between corpora and structural groups - tokens*

	2001-2010	2011-2020
Noun phrase based	5.1	-5.1
Prepositional phrase based	-0.9	0.9
Verb phrase based	-3.1	3.1
Other structures	-2.9	2.9

Differences between corpora based on structural subgroups – types

There was no significant association between corpora and structural subgroups based on bundle types (Table 6.), χ^2 (11, N =156) = 7.61, p = .748.

Table 6. *Crosstabs between corpora and structural subgroups (types)*

	2001-2010 (%)	2011-2020 (%)
Noun phrase with of-phrase fragment	24.1	17.8
Other noun phrases	6.0	6.8
Prepositional phrase with embedded of-phrase fragment	42.2	35.6
Other prepositional phrase fragments	7.2	11.0
Anticipatory it + verb phrase/adjective phrase	6.0	5.5
Passive verb + prepositional phrase fragment	0.0	2.7
Copula be + noun phrase/adjective phrase	4.8	4.1
(Verb phrase) + that clause fragment	2.4	2.7
(Verb phrase) + to clause fragment	2.4	4.1
Pronoun/noun phrase + be	1.2	0.0
Other verb fragments	1.2	4.1
Other structures	2.4	5.5
Total	100.0	100.0

Differences between corpora based on structural subgroups – tokens

Chi-square test, χ^2 (11, N =3048) = 102.33, p < .001, indicated that there was a statistically significant association between corpora and structural subgroups (Table 7.).

Table 7. *Crosstabs between corpora and structural subgroups (tokens)*

	2001-2010 (%)	2011-2020 (%)

Noun phrase with of-phrase fragment	23.4	16.5
Other noun phrases	7.6	6.4
Prepositional phrase with embedded of-phrase fragment	39.2	37.8
Other prepositional phrase fragments	9.9	13.1
Anticipatory it + verb phrase/adjective phrase	5.6	6.4
Passive verb + prepositional phrase fragment	0.0	1.7
Copula be + noun phrase/adjective phrase	4.4	3.3
(Verb phrase) + that clause fragment	2.7	2.9
(Verb phrase) + to clause fragment	2.1	3.5
Pronoun/noun phrase + be	0.8	0.0
Other verb fragments	0.6	2.7
Other structures	3.6	5.7
Total	100.0	100.0

Adjusted standardized residuals (Table 8.) indicate that noun phrase with of-phrase fragment and pronoun/noun phrase + be bundles were represented more in the earlier corpus, while other prepositional phrase fragments, passive verb + prepositional phrase fragment, (verb phrase) + to clause fragment, other verb fragments and other structures were more frequent in the later corpus. There were no significant residuals for other subgroups.

Table 8. *Adjusted standardized residuals between corpora and structural subgroups*

	2001-2010	2011-2020
Noun phrase with of-phrase fragment	4.8	-4.8
Other noun phrases	1.3	-1.3
Prepositional phrase with embedded of-phrase fragment	0.8	-0.8
Other prepositional phrase fragments	-2.7	2.7
Anticipatory it + verb phrase/adjective phrase	-0.9	0.9
Passive verb + prepositional phrase fragment	-5.2	5.2
Copula be + noun phrase/adjective phrase	1.6	-1.6
(Verb phrase) + that clause fragment	-0.5	0.5
(Verb phrase) + to clause fragment	-2.4	2.4
Pronoun/noun phrase + be	3.4	-3.4
Other verb fragments	-4.5	4.5
Other structures	-2.9	2.9

Differences between corpora based on functional groups – types

Even though there were more research-oriented bundle types in earlier corpus and more text-oriented bundles in later corpus (Table 9.), the chi-square test did not reach statistical significance, χ^2 (2, N =156) = 3.06, p = .216.

Table 9. *Crosstabs between corpora and functional groups (types)*

	2001-2010 (%)	2011-2020 (%)
Research oriented	49.4	37.0
Text oriented	42.2	56.2
Stance oriented	8.4	6.8
Total	100.0	100.0

Differences between corpora based on functional groups – tokens

Crosstabulation between corpora and functional groups is presented in Table 10. Chi-square test was significant, χ^2 (2, N =3048) = 44.35, p < .001, indicating that there was a statistically significant association between corpora and different functional groups.

Table 10. *Crosstabs between corpora and functional groups (tokens)*

	2001-2010 (%)	2011-2020 (%)
Research oriented	45.5	34.3
Text oriented	46.1	57.7
Stance oriented	8.4	8.2
Total	100.0	100.0

Adjusted standardized residuals are presented in Table 11., and results indicate that there were more research-oriented bundles in the earlier corpus, while there were more text-oriented bundles in the later corpus (compared to the expected frequencies).

Table 11. *Adjusted standardized residuals between corpora and functional groups*

	2001-2010	2011-2020
Research oriented	6.3	-6.3
Text oriented	-6.4	6.4
Stance oriented	0.5	-0.5

Differences between corpora based on functional subgroups – types

Chi-square test was not significant, χ^2 (8, N =156) = 5.52, p = .700,

indicating that there was not a significant association between corpora and functional subgroups on bundle types (Table 12.).

Table 12. *Crosstabs between corpora and functional subgroups (types)*

	2001-2010 (%)	2011-2020 (%)
Location	6.0	6.8
Procedure	8.4	6.8
Quantification	15.7	8.2
Description	19.3	15.1
Transition sig.	7.2	12.3
Resultative sig.	7.2	11.0
Structuring sig.	1.2	0.0
Framing sig.	26.5	32.9
Stance features	8.4	6.8
Total	100.0	100.0

Differences between corpora based on functional subgroups – tokens

Crosstabulation between corpora and functional subgroups is presented in Table 13. Chi-square test was significant, $\chi 2$ (8, N =3048) = 112.04, $p < .001$, indicating that there was a statistically significant association between corpora and different functional subgroups.

Table 13. *Crosstabs between corpora and functional subgroups (tokens)*

	2001-2010 (%)	2011-2020 (%)
Location	6.5	9.1
Procedure	6.4	6.5
Quantification	16.2	6.9
Description	16.3	11.8
Transition sig.	10.9	15.0
Resultative sig.	7.6	11.5
Structuring sig.	0.8	0.0
Framing sig.	26.8	31.3
Stance features	8.4	7.9
Total	100.0	100.0

Adjusted standardized residuals indicate that there were no significant differences on two subgroups, procedure and stance features, while there were significant differences on all other subgroups (Table 14). Quantification, description and structuring sig. bundles were more frequent in earlier corpus, while location, transition sig., resultative

sig., and framing sig. were more frequent in the later corpus.

Table 14. *Adjusted standardized residuals between corpora and functional subgroups*

	2001-2010	2011-2020
Location	-2.6	2.6
Procedure	-0.1	0.1
Quantification	8.0	-8.0
Description	3.5	-3.5
Transition sig.	-3.4	3.4
Resultative sig.	-3.7	3.7
Structuring sig.	3.4	-3.4
Framing sig.	-2.7	2.7
Stance features	0.5	-0.5

5. Discussion

The statistical analysis of this study showed that no statistically significant differences in the type structural and functional categories and subcategories occurred, but the differences were significant for tokens. Such results indicate that over time the concrete lexical bundles used have not changed in a significant way but that the frequency of their usage has changed. The fact that the number of lexical bundle types and tokens has decreased over the years may also indicate that academic prose in the field of education is becoming less rigid in structure and that other less formulaic structures are becoming more prominent for expressing the same meanings.

The structural categorization of lexical bundles into categories showed that noun phrase and prepositional phrase bundles make up the majority of the corpora. This is a typical characteristic of academic writing which uses these two groups of structures to focus on the discourse itself rather than to referential content or participants (Hyland & Jiang, 2018). In our study the most prominent structural category is noun phrase bundles followed by prepositional phrase bundles and verb phrase bundles. The same structural category distribution is present in the corpus of educational research articles written by native speakers in the Güngör & Uysal (2016) study. In the Cui & Kim (2021) study the most prominent structural category is the noun phrase bundles followed by prepositional phrase bundles. Such a discrepancy in the results can be explained by the fact that the Cui & Kim (2021) study explored lexical bundles in doctoral dissertations and not research articles and by the fact that her corpus covered a narrower field of education, namely only English language teaching.

The results of the token structural category analysis indicated that usage of noun phrase structures significantly decreased over time while

the usage of verb phrase structures and other structures increased. Verb phrase bundles were shown to increase over time in both Hyland & Jiang (2018) and Cui & Kim (2021). Such a shift might indicate a movement towards a more direct writing style in the scientific papers in the field of education.

In Hyland & Jiang (2018) a preference was shown for the subcategories of *passive verb + prepositional phrase fragment* and *copula be + noun phrase/adjective phrase* within the verb phrase-based bundle category. Our study also shows a significant increase in the usage of the *passive verb + prepositional phrase fragment* over time. Bundles in this subcategory typically mark locative or logical relations (Hyland, 2008b). With their usage writers aspire to guide readers through the text:

(1) The results of these analyses *are shown in Table* 2. (2011-2020 Corpus).

Passive structures are recommended by the APA style guide for the description of the research/experimental set up of the study. The increase of passive bundles might indicate that researchers in the field of education are placing greater focus on the methodological section of their articles. Such a deduction is perhaps supported by the findings in Candarli & Jones (2019) which showed that studies which implemented the quantitative paradigm used more passive lexical bundles than studies with a qualitative paradigm. The increase of the passive lexical bundles in academic research articles in the field of education over time, therefore, might also indicate a paradigmatic shift in the articles but further research is needed for the exploration of that possibility.

In the verb-based bundle subcategories a significant increase was noted in the subcategory *(verb phrase) + to clause fragment* and a decrease in the *pronoun/noun phrase + be.* No change was shown in the usage of the subcategory *anticipatory it + verb phrase/adjective phrase* which indicates that writers continue to frontload statements and evaluate meanings with this structural subgroup of lexical bundles in the same way over time.

As in our study, noun phrase bundles showed a decrease in the usage over time in Hyland & Jiang (2018), but Cui & Kim (2021) noted an increase of usage in their study. Noun phrase lexical bundles are usually used to specify the characteristics of what is being discussed and their decreased use might indicate that authors are starting to employ different forms for conveying such meanings. When we look at the noun phrase token subcategories a significant decrease was determined in the *noun phrase with of-phrase fragment* category.

The functional analysis of lexical bundles in our study showed that in

both of the corpora text-oriented bundles were the most prevalent followed by research-oriented bundles and with participant-oriented bundles as the least frequent. Such results are not in line with previous studies of lexical bundles in the field of education since in both Güngör & Uysal (2016 in the native speaker corpus) and Cui & Kim (2021) the most prevalent functional group was research-oriented bundles followed by text-oriented bundles and with participant-oriented bundles as the least prevalent. Such discrepancies might be explained for Cui & Kim (2021) by the fact that the corpus consists of doctoral dissertations and not academic articles in the field of education and for Güngör & Uysal (2016) by the fact that the corpus of our study contains both native and non-native speaker texts. In the Güngör & Uysal (2016) study the non-native speaker corpus showed the same functional category distribution as in our study.

The statistical analysis of the functional distribution of lexical bundle types did not show any statistically significant results in the main categories or in the functional subcategories. However, statistically significant differences were found in the functional category and subcategory distribution of tokens. Such results indicate that the concrete lexical bundles used in the two time periods did not change but that the frequency of their usage did.

The usage of research oriented lexical bundle tokens showed a statistically significant decrease and it went from 45.5% in the 2001-2010 Corpus to 34.3% in the 2011-2020 Corpus. A decrease in the usage of research-oriented bundles over time was also found in biology and electrical engineering fields in the Hyland & Jiang (2018) study. Research oriented bundles convey real-world and empirically-focused meanings in a text. The research-oriented subcategories which significantly decreased were quantification and description while the usage of bundles in the subcategory of location actually increased. Some examples of lexical bundles which were identified in the 2001-2010 Corpus but which were no longer identified as bundles in the 2011-2020 Corpus are:

- in the quantification subcategory *a wide range of, the total number of, one of the most, the majority of the* etc.;
- in the description subcategory *of the importance of, were more likely to, the relationship between* etc.;

The usage of text-oriented bundle tokens significantly increased over time and went from 46.1% in the 2001-2010 Corpus to 57.7% in the 2011-2020 Corpus. The usage of text oriented lexical bundles helps the author navigate the reader through the text by providing warrants, making conclusions, specifying limitations and connecting ideas. Text oriented subcategories which showed a significant increase were

transition, resultative and framing signals while structuring signals significantly decreased. Some examples of lexical bundles present in the 2011-2020 Corpus but which were not identified in the 2001-2011 Corpus are:

- in the transition signal subcategory *when it comes to, as well as to* etc.
- in the resultative signal subcategory *research has shown that, are shown in table* etc.
- in the framing signal subcategory *to participate in the, in this case the* etc.

6. Conclusion

Like a live organism, language changes and evolves over time, lexical bundles as a part of this system are no exception. Our study contributed to the small but growing research tide which explores how lexical bundles are changing over time. In order to get the most concise information regarding the changes over time we sought to control many variables and focus on a narrow field. Namely the focus was placed on the usage of lexical bundles over time in research articles in the field of education. Our study also controlled for the native/non-native speaker factor which was show in previous studies to influence the number of identified lexical bundles and their usage. The results showed a decrease in the usage of lexical bundles and statistically significant changes in the structural and functional usage of lexical bundle tokens over time. Statistically significant differences were only present for the tokens which indicates that the usage of the specific lexical bundles has not significantly changed, only the frequency with which they are used. The usage of verb phrase bundles increased over time while the usage of noun phrase bundles decreased which might indicate a shift towards a less rigid writing style in educational research articles. The increase of text-oriented bundle and decrease of research-oriented bundles might indicate that writers are increasing their efforts to help readers navigate through the research which they are presenting.

Our study contributes to the understanding of how the usage of lexical bundles changes over time in the field of education by exploring their change in academic articles. We believe that it is also significant because it takes into consideration the factor of native/non-native speaker during the exploration of the changes of lexical bundle usage over time, which to the authors' knowledge has not been done before.

When considering the limitations of the study it should be noted that the corpora used in the study are fairly small. It would be useful to conduct a similar study with larger corpora. Further research into how the usage of lexical bundle changes over time in the writing of native

vs. non-native writers has not been explored, but might provide useful insight into the topic.

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Appendix 1. *Shared and corpora specific bundles*

Shared	2001-2010	2011-2020
and the development of	*(of) the quality of the*	(for) the purpose of this
and the use of	(the quality) of teaching and learning	a broad range of
as part of the	*(to) meet the needs of*	*are more likely to (be)*
as well as in	a large number of	are shown in table
at the end of (the)	a wide range of	*as a result of (the)*
at the same time	are less likely to	as part of their
at the time of	*are more likely to*	*as well as the/a*
for the development of	*as a result of*	as well as their
in a variety of	as one of the	as well as to
in addition to the	*as well as the*	*at the beginning of (the)*
in relation to the	*at the beginning of*	at the heart of
in terms of the	at the expense of	has been shown to
in the case of	at the level of	*have/has the potential to*
in the field of	at the university of	in a range of
in the form of	by the end of	in a way that
it is necessary to	for each of the	in the area of
on the basis of	for the purposes of	*in the context of*
on the development of	*has the potential to*	*in the number of*
on the one hand	improve the quality of	in this case the
on the other hand	in a number of	*is one of the (most)*
that there is a	in the absence of	*it is important to (note)*
the extent to which	*in the context of (the)*	it is likely that
the fact that the	in the development of	*meet the needs of*
the impact of the	in the light of	of this study was
the nature of the	in the process of	on the part of
the results of the	in the use of	over the course of
the results of this	*in the/a number of*	research has shown that
the role of the	in this paper we	research in this area
there has been a	is likely to be	*the development of the/a*
through the use of	it is difficult to	the findings of this
to be able to	*it is important to*	the first year of
	it is possible that	*the quality of the*
	it is possible to	the students in the
	of education and training	*the way(s) in which*
	of the importance of	there is a need
	of this paper is	this study was to
	one of the most	to focus on the
	the degree to which	to participate in the
	the development of a	*to the development of*
	the introduction of the	when it comes to

	the majority of the	with the exception of
	the needs of the	within the context of
	the number of students	
	the relationship between the	
	the teaching and learning	
	the total number of	
	the use of the	
	the ways in which	
	to ensure that the	
	to the development of (the)	
	were more likely to	
	with a number of	

IS THERE REALLY A GENERATIONAL GAP? CHARACTERISTICS, VALUES AND HOW TO TALK TO EACH GENERATION

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Abstract. *Every twenty years or so, a new generation emerges, in the sense of a large group of individuals with their own set of characteristics. And each generation is slightly different than the previous ones, and faces challenges in communicating with other generations. In this theoretical research, we analyze the various generations that exist, with a focus on their main characteristics, similarities and differences. There are six main generations, from the beginning of the 20th century (around 1920's till present day): (1) the mature generation; (2) baby boomers; (3) generation X; (4) generation Y; (5) generation Z and (5) generation Alpha. The purpose is to give a broad view about their main traits and recommendations about how to talk to each generation and we hope these ideas will help improve communication both at work, on a professional level and between generations, mainly on a personal level.*

Keywords*: generations; communication; work-life; similarities; differences; solutions.*

Introduction

Individuals born in the same chronological and historical timeline are considered a "generation" (Twenge et al., 2010). Approximately every 20 years, there is a new generation change (Howe & Strauss, 1991). And regardless of the year you are born, you have certainly faced adversity and challenges in communicating with others, especially if they are of a different age than you are. Often called "the generational gap" (Giancola, 2006; Gravett, 2007), it is nowadays more present than ever in all fields. We can see these differences not just at home, where grandparents meet with their children or grandchildren, but also at work, where several generations work together. There are now six generations that live and sometimes work together: the mature generation (born before 1945, the end of World War II), the baby boomers (born between 1945-1960), generation X (born between 1960-1980), generation Y (1981-1995), generation Z (1996-2012) and

generation Alpha (born from 2013 till present day). Of course, those years are an approximation and it is possible to find variations to this classification, but as a general approach, most will agree to the above categories.
We will base our analysis on a comparison of similarities and differences on several aspects such as the experiences each generation had, their career expectations, their most used product, means of communication.

The Silent Generation
The mature generation, born before 1945 or the end of the second World War (WW2), also called the Silent Generation, was characterized by a search for stability and respect for authorities (Pennington-Gray & Lane, 2002; Henger & Henger, 2012). We have to understand that this generation has seen five years of global war and atrocities, some of them have even seen the aftermath of the first world war and the great depression of the 1920's, so being cautious and "silent" was expected after all the turmoil they experienced. Childhood for this generation meant scarcity and frugality, as they lacked most of the things we now take for granted. Family was at the center of their values and many married at a younger age than any other generation to come, probably because they experienced so much uncertainty. They also valued the community and personal responsibility, and they were loyal to their friends, family and organization. Resources were rationalized due to war, and the roles were clear, meaning only men worked. This however changed during WW2, because most men were fighting in foreign territories and women came to aid an economy that otherwise would not have survived. In terms of career expectations, most jobs were characterized by long, hard working hours of physical labor. They were known for their strong working ethics and discipline. Their most used product was the car and some could even hope for a home of their own, especially in the US, where there were some special aid plans. As a means of communication, the silent generation used mainly letters and face to face communication. In terms of technology adaptation, they were not as adaptable as the recent generations, but some of them were open to new discoveries and technologies.

The Baby Boomers Generation
This post-war generation, born roughly between 1946-1960's, was characterized by a post-war optimism, in a time of social and cultural growth, which contributed to a sense of opportunity and possibility (Phillipson, Leach, Money & Biggs, 2008). They were a larger population than the one before them, as a result of an increase in natality after WW2. They are often seen as the generation that started a

cultural revolution (Gilleard & Higgs, 2007) in various areas: anti war protests, the civil rights revolution, sexual revolution and a counterculture movement. In terms of work ethics, many embraced a strong commitment towards their employers and stayed in the same job for decades or even their entire life (Zabel et al., 2017). Regarding technology, they experienced many fast-paced changes, such as the move from analog to digital, the appearance of the Internet and the development of personal computers. The most used product of this generation was the family car, and then, with the advances of technology, the TV. Also due to technology advances, their means of communication was mainly the telephone, as well as face to face.

Generation X

This is the generation that came after the "Baby Boomers", and it refers roughly to the people born between 1960-1980 (or around the mid 60's and the beginning of the 80's) and they grew up to be very independent and self-reliant, as a consequence of living in a time of many social changes and challenges (Kupperschmidt, 1998; Kian & Yusoff, 2012). They witnessed the rise of the tech industry and entrepreneurship, so many representatives of this generation embraced innovation and an entrepreneurial spirit (Reisenwitz & Iyer, 2009). Compared to the Silent Generation, the X Generation tends to exhibit more skepticism and are more cynical towards authorities, mainly due to the many political shifts and changes. Just like their predecessors, because they grew up in a time of technological advancement, X gens are very adaptable and comfortable with technology, even though they did not live in a fully digital age like the next generations will (Yang & Jolly, 200). Because WW2 changed the work balance and women starting to work as well, Generation X was the first to really experience the benefits of a dual income in each household, and this led to more consumerism and traveling, but also to the need of finding a work-life balance (Otken & Erben, 2013) (women used to raise kids in previous generations, now we see both parents working or even dads raising kids). This also led to a more laid back attitude towards work, X gens valuing more autonomy and flexibility. Although loyal to their jobs and employers, they are less stable than the previous generations and change jobs more often, in search of better opportunities (Jin & Rounds, 2012). Their most used product is the personal computer and their main means of communication is the SMS (short message) and email, but they also like to talk face to face. In terms of music and pop culture, this generation was influenced by many musical styles such as punk, rap, hip hop, alternative rock, and iconic movies from the 80's and 90's played an important role in their cultural references.

Generation Y

This generation is also called Millennials and it refers to individuals born between 1980 and mid-1990s. They are the first generation to have grown with widespread access to technology, so they are considered quite tech savvy, as they are comfortable with new technologies and are early adopters (Nawaz, 2020). They are very social and connected and they value relationships (Myers Sadaghiani, 2010; McCorkindale, DiStaso & Sisco, 2013). Regarding diversity and inclusiveness, they place a higher value on those two concepts than the previous generations (Smith & Turner, 2015). They are more open on diversity in terms of sexual orientation, race, gender and ethnicity (Ford, Jenkins & Oliver, 2012). In terms of work and entrepreneurship, they are seeking meaningful work environments, flexible arrangements and purpose in their careers. Millennials are education focused and pursue their formal development as well as an informal one (Noguera Fructuoso, 2015) with a clear purpose in mind. Millennials are very socially conscious and engage in behaviors that support the environment and other socially important issues, and align those with their own values (Gray, Raimi, Wilson and Arvai, 2019). Their most used product is the smartphone or similar device (tablet, laptop) and they still prefer face to face communication. Facing many economic challenges and societal changes, they tend to delay certain traditional milestones such as marriage, starting a family or owning a house (Martin, Astone & Peters, 2014). As for work life balance, they value this a lot and often prioritize a fulfilling life in parallel with their careers (Buzza, 2017). Millennials' behavioral patterns have been shaped mainly by the developing technology, social media and online content streaming, and this can be seen in their consumption style, communication and entertainment preferences.

Generation Z

This is the first generation to have grown entirely with digital technology and include the individuals born from the mid 1990's till around 2010 in some approaches or 2012 in others. They are also referred to as Z gen and are considered digital natives, having lived with technology, the Internet and social media from a very young age. However, this does not automatically make them digital savvy, because most of the time they use digital devices for entertainment, purposeless browsing and sometimes mindless scrolling (Caddy, 2021; Chellasamy et al., 2022). They are definitely more tech fluent than previous generations (which is expected, considering they are born in a digital age) and at the same time they are tech dependent, communicating, learning and socializing mainly through technology. They exhibit entrepreneurial qualities which drive them to become freelancers, to

begin start-ups and other ventures (Iorgulescu, 2016). Similar to their predecessors, Z gens tend to value diversity and inclusion and embrace a wide range of experiences and perspectives (Smith & Turner, 2015). They are often seen as realistic and pragmatic in their career approach and prioritize financial stability, with clearly defined career expectations and development plans (Barhate & Dirani, 2022). In terms of work, they like work environments that promise them flexible hours and good payment (Glassdoor, 2019), expect a good work-life balance (Deloitte, 2019), stability and paid family leaves (Grow & Yang, 2018), look for work benefits such as health plans (Hampton & Welsh, 2019) and work safety (Goh & Lee, 2017). Their most used tool is the smartphone and the apps on this device, and their main means of communication are hand held devices.

Generation Alpha

This is the youngest generation, so it is quite difficult to make definitive statements. The term was coined by an Australian researcher, Mark McCrindle, with a focus on novelty. These are the individuals born from 2010/2013 till present day and it is likely that they will be even more tech savvy than the generations before them (only time will tell). With the amazing development of the Internet, technology and AI, Alpha gens are expected to be even more connected and up to date than anyone before them (McCrindle & Fell, 2020). They are called the glass generation or screenagers (Tootell, Freeman & Freeman, 2014), because of their connection to technology and digital devices. This can also give them a better understanding of the cultural diversity and other societal, economic and political issues. They are likely to be more inclusive and open, environmentally conscious, and innovative. Again, only time will tell if the Covid-19 Pandemic has shaped them to be more resilient. We believe it will influence them in a positive manner. Their learning styles are highly dependent on technology and they will also be able to learn easier on themselves, as they are more capable than anyone to find information through all their digital devices (Ziatdinov & Cilliers, 2022).

Communicating Information

Knowing all this about each generation, one can wonder how come there are so many communication misunderstandings and how things can be improved, both on a personal and professional level. How can managers talk to each generation, in order to have a higher productivity and what is important to keep in mind to achieve the desired results? Next, we compile a series of recommendations about how information should be communicated for each generation.

With the Silent Generation:

A. **On a personal level**:

- **Show respect for traditions**: "I have always admired you for your commitment to the family. Can you share more about your experiences and what it means to you?"
- **Express gratitude in person**: "I wanted to tell you how grateful I am for your help. It means a lot to me, and I believe it is important to say thanks in person."
- **Use polite and formal language**: "May I spare a moment of your time? I wanted to discuss your idea, because your insights could be highly valuable."
- **Send handwritten notes**: "I am sending you a handwritten note to let you know how much I appreciate your kindness. It is a small gesture, but I wanted to express my gratitude in a more personal way."
- **Initiate face-to-face conversations**: "Let us have a talk next week. I would love to see you and hear about your experiences and ideas."

B. **On a professional level**:

- **Acknowledge experience and expertise**: "Your experience on this topic has always been an inspiration. I would appreciate the opportunity to seek your guidance."
- **Request face-to-face meetings**: "I believe a face-to-face meeting would be important to discuss the upcoming project. Let me know if that would work for you"
- **Use formal communication channels**: "I sent you a formal email with the project updates. Please review it, and if you have any thoughts, we can discuss them next week."
- **Provide structured feedback**: "I have prepared a detailed feedback report on your recent contributions that I would like to discuss with you in person, because I value your insights."
- **Show respect for hierarchy**: "Before making any major decisions, I wanted to consult with you. Can we schedule a meeting to discuss the direction we are planning to take?"
- **Recognize achievements publicly**: "During the team meeting, I plan to acknowledge your significant contributions. Your dedication and leadership have not gone unnoticed."
- **Focus on stability and long-term goals**: "Let us discuss our long-term goals for the department. I think your ideas on maintaining stability can be very useful."
- **Respect their preferred communication methods**: "I know you prefer phone calls over emails and for that reason, I will make sure to communicate important updates that way."

- **Seek advice on professional development**: "I am considering some professional development opportunities. Your guidance on which ones align with my career goals would be highly valuable."
- **Encourage sharing of institutional knowledge**: "Considering your expertise and knowledge, would you be open to sharing some insights during our team's next training session? Your experiences could benefit the entire team."

With Baby Boomers:

A. **On a personal level**:

- **Show respect for traditions**: "I noticed you have a passion for painting. Can you share more about your experiences with it? I'm interested in learning more."
- **Express gratitude and appreciation**: "I wanted to thank you for your advice on cooking. Your insights were valuable, and I appreciate your guidance."
- **Engage in face-to-face conversations**: "Let's grab lunch next week. I'd love to catch up in person and hear about your recent experiences."
- **Share personal accomplishments**: "I succeeded recently in a personal endeavor and thought of sharing it with you. Your support has always meant a lot to me."
- **Connect through family and community**: "I heard about the community event you are involved in. Can you tell me more about it? I would love to understand if and how I can contribute."
- **Use formal communication styles**: "I am sending you a letter to express my gratitude. I find that written communication adds a personal touch."

B. **On a professional level**:

- **Acknowledge experience and expertise**: "Your years of experience in this industry have been crucial to our team's success. Can we schedule a meeting to discuss your insights on the current trends?"
- **Provide opportunities for mentorship**: "I value your expertise and would love the opportunity to be mentored by you. I believe your guidance would be invaluable."
- **Use face-to-face meetings**: "I would like to discuss the upcoming project with you. Can we schedule a face-to-face meeting to ensure we cover all the details?"

- **Encourage open dialogue**: "Our team values open communication. If there are any concerns or suggestions you have, please feel free to share them during our next meeting."
- **Use formal language in emails**: "I am sending you an email with the project updates. Please review and let me know if you have any comments or suggestions."
- **Respect hierarchical structures**: "I would like your input on the project proposal before we present it to the team. Can we set up a meeting where we can go over the details together?"
- **Recognize achievements publicly**: "During our last team meeting, I have acknowledged your contributions to the recent success. Your dedication and expertise have been very important."
- **Give structured feedback**: "I have prepared a formal feedback document on the recent project. I would like to review it with you during our one-on-one meeting to discuss your thoughts."
- **Focus on long-term goals**: "Let us discuss our long-term goals for the department. I value your perspective on how we can strategically achieve these objectives."
- **Be mindful of technology preferences**: "I noticed you prefer phone calls over emails. Therefore, I will do my best to communicate important updates through a phone call or in-person meeting."

With Generation X:

A. **On a personal level**:

- **Initiate one to one conversation**: "Hey, can we have a coffee this week? I would love to catch up and hear how things have been going for you."
- **Respect their independence**: "I know that you are coordinating the project on your own and if you need any support or collaboration, feel free to tell me."
- **Be straightforward**: "I value your opinion and would love to hear your thoughts on this topic."
- **Recall shared experiences**: "Do you remember that trip we did together? It got me thinking about repeating that. What do you think?"
- **Acknowledge their expertise**: "I've always admired your expertise in photography. Can you share some insights with the team? They mentioned they would love to take better photos."
- **Use email for formal communication**: "I'm sending you an email with the details. Please have a look at it, and let me know your thoughts."

B. **On a professional level**:

- **Respect work-life balance**: "I noticed you've been putting in extra hours lately. Let's discuss how we can adjust the workload to ensure a better work-life balance."
- **Recognize experience and seniority**: "During the team meeting, I'd like you to share your experiences with our current project. Your insights would be valuable to everyone."
- **Provide autonomy**: "I trust your judgment on this task. Take the lead, and let me know if you need any resources or support."
- **Facilitate flexible work arrangements**: "We are open to flexible work arrangements. If you need to adjust your schedule or work remotely, let's discuss a plan that is best suited for you and the team."
- **Offer professional development opportunities**: "I have identified a training program that aligns with your skills and career goals. How would you feel about participating?"
- **Encourage direct communication**: "We value direct communication in our company. If you have concerns or ideas, please bring them up in our next team meeting or feel free to schedule a discussion."
- **Use established communication channels**: "Let's continue this discussion on our project management platform. It is efficient and keeps everything organized for the team."
- **Recognize achievements publicly**: "I wanted to personally acknowledge your contribution to the recent success. Your efforts haven't gone unnoticed, and I appreciate your dedication."
- **Emphasize results and efficiency**: "We are focused on streamlining our processes. Do you have any suggestions on how we can make our workflows more efficient and productive?"
- **Be mindful of personal commitments**: "I know you have personal commitments, so let's discuss how we can accommodate your schedule and ensure you have the time you need outside of work."

With Generation Y:

A. **On a personal level**:

- **Use social media**: "I saw your travel photos on social media and it looks like an amazing trip! What did you like the most?"
- **Show a genuine interest**: "I remember you mentioned a hobby you're passionate about. How's that going? I'd love to hear more about it."

- **Share personal stories**: "I had a similar experience like yours and here is how I dealt with it. How do you handle situations like that?"
- **Facilitate meaningful conversations**: "Let's have tea and catch up. I am curious about what ideas you have on this topic."
- **Express appreciation**: "I wanted to let you know I appreciate your hard work on the project. Your dedication has been noticed and cherished."
- **Use Emojis and GIFs**: "Your promotion news deserves a celebration! How about we get together this weekend to mark the occasion?"

B. **On a professional level**:

- **Offer regular feedback**: "I wanted to give you feedback on your recent presentation. I believe you did a great job and your presentation contributed to the overall impact."
- **Use digital communication tools**: "Let's continue this discussion on Slack. It's a great platform for quick updates and collaboration."
- **Encourage collaboration**: "We have a team project coming up and I would like you to lead a brainstorming session. Would you be interested?"
- **Emphasize work-life balance**: "We understand the importance of work-life balance and if you need a more flexible schedule to manage personal commitments, let me know and we will search for solutions."
- **Offer professional development opportunities**: "I recently found a workshop that aligns with your career goals. Would you be interested in attending? To see how we can support your growth…"
- **Recognize achievements publicly**: "During the last team meeting, I have mentioned your contribution to the recent project, because it is important that everyone acknowledges your hard work."
- **Promote a collaborative culture**: "We want to improve our processes and we want to have a team discussion where everyone can share their ideas and suggestions. What do you think?"
- **Facilitate open communication**: "Our team values open communication. If you have any concerns or ideas, feel free to express them in our weekly meetings or through our communication channels."

- **Use visuals in presentations**: "For our next client presentation, let's incorporate visuals and infographics to make the information more engaging and friendly."
- **Encourage innovation and new ideas**: "We are exploring new approaches for our next project. What innovative ideas do you have that we can incorporate into our strategy?"

With Generation Z:

A. **On a personal level**:

- **Use social media platforms** and communicate via those. You can say something like: "I saw your latest post on Instagram and I think that photo looks amazing! What inspired you to take that photo?"
- **Share memes and humor**. Show them a meme and tell them: "This meme reminded me of you and I think you would like it too. What do you think?"
- **Be authentic and transparent**. Say this: "I appreciate honesty and I know you do too. What's your view on the matter?"
- **Ask for their input**. For example, say this: "I am planning something for the weekend, and I'd love your input. What do you think about the idea of having a trip into the mountains?"
- **Respect their individuality**. For example, tell them this: "I admire your perspective on things. What other interests or hobbies do you have?"
- **Use messaging apps**. You can start by saying: "I sent you a quick message on Snapchat. Let me know when you've seen it. We can chat more there!" (*this does not mean that it will replace your face-to-face communication, it is simply an acknowledgement that you know about other trendy means of talking*).

B. **On a professional level**:

- **Use digital collaboration tools**. For example, say this: "Let us work on this project together using Canva. It is efficient, and we can easily collaborate in real-time."
- **Provide bite-sized information**. Say this: "I have made a summary of the main points in this infographic. Please have a look and let me know if you have any questions."
- **Schedule virtual meetings**. Suggest something like this: “Instead of a face-to-face meeting, what do you think about a quick Zoom call? It's more convenient and efficient."
- **Encourage feedback**. Tell them this: "I believe your insights are valuable. Can you share your thoughts on the latest proposal? We're open to feedback."

- **Recognize achievements publicly**: "Congratulations on completing that project! I'm giving you a shoutout in our team meeting tomorrow. Well done!"
- **Offer growth opportunities**: "I have identified some professional development opportunities. Do you see any that align with your goals and interests?"
- **Suggest a flexible work environment**: "We want to adopt a more flexible work schedule. How do you feel about adjusting your working hours to better suit your productivity?"
- **Suggest social responsibility initiatives**: "Our company is involved in a new sustainability initiative and I believe you can contribute with some interesting ideas."
- **Use visual presentations**: "For our upcoming presentations, let's use a mix of visuals and concise points like in Canva, because these will keep the audience engaged and informed."
- **Promote work-life balance**: "We value work-life balance. Let's discuss how we can support each other in maintaining a healthy equilibrium."

With Generation Alpha:

- **Use visual and interactive content**. Instead of long and boring paragraphs of text, use instead visually attractive and interactive content (infographics, visual templates, photographs, short videos or quizzes).
- **Use technology and apps**. Instead of trying to communicate the way you are used to, use technology to communicate as they prefer. If they like apps like WhatsApp or Snapchat, use those. The simplest way is to ask how they prefer to communicate and go with those options.
- **Be brief and to the point**. Instead of long messages, use short ones that convey a clear message: “I sent you a list with three main points. Have a look at it and let me know your thoughts”.
- **Encourage collaboration and participation**. Instead of telling them what to do, acknowledge their perspective too and ask them to be part of the decision-making process: “Let’s work together on this project. Let me know your ideas.”
- **Support creativity and expression of ideas**. Instead of feeding your ideas, ask for their ideas: “I would love to know what you think about this idea. Make a sketch or a short video about this topic.”
- **Be careful about digital traps and etiquette**. Tell them about the possible traps of the online environment and teach them about the internet etiquette (or netiquette), so that they can be aware of the possible dangers such as cyber bullying,

pornography and other online issues. One possible message could be: "Try to always be respectful online, with everyone you interact with. If you have any questions or concerns, feel free to talk to me or any trusted adult in our family/community."

- **Use gamification**. Remember that everyone likes challenges and rewards, and Alpha gens love this even more than other generations, as they are born in a digital and fast paced era. Tell them something like this: "How would you feel if we turned this into a game, and see if you can solve this challenge or find the answer to this problem?"
- **Share positive content**. Focus on inspiring and positive stories, sharing content that promotes empathy, kindness and optimism: "Check out this great story (book, movie) that I read/saw these days. I really loved it and I believe you will like it too."

Final conclusions

Although there are many differences between the six presented generations, especially in terms of work values (Dick, 2019; Wiedmer, 2015), we believe that there is a proper way to communicate and approach each generation, if one considers their main characteristics. It is always important to look at the forces that shape a certain generation (societal, economic, political, technological) and take them into account, both on a personal and professional level. There is a set of core values and characteristics that is important for each generation. For the silent generation, the main values were stability and respect for authorities. This means that, when communicating with individuals from this generation, you have to show them respect and appreciation for what they did and do. Also, allow time for any change, since they like stability (Dries, Pepermans & Kerpel, 2008). This generation values personal responsibility and loyalty towards family, friends, community and organizations (Fornell et al., 2020). The Baby Boomers were characterized by strong commitment to their work environment and employers (Zabel et al., 2017; Seifert et al., 2023). Having experienced many changes in their lives, they are more adaptable and faster to adopt novelty than their predecessors. Nevertheless, they value respect towards them and their generation, have preferred means of communication and appreciate when those are used and their communication style is more formal (Gurzik, Ozok & Morris, 2007). Generations X and Y have a more laid-back attitude towards work and therefore it is important to value their work-life balance (Otken & Erben, 2013), generation Z, while still focusing on a work-life balance (Deloitte, 2019), they also value a flexible work environment (Glassdoor, 2019) and other work benefits (Hampton & Welsh, 2019).

Last but not least, generation Alpha is the newest generation and soon to be involved in the work environment. It is clear though already that they prefer a certain way of learning, which is highly dependent on technology (Ziatdinov & Cilliers, 2022).

Though there are many articles that suggest the existence of a communication gap between generations (Subramaniam & Razak, 2014;), we believe that this **gap**, if it exists, is only present because of a lack of understanding of the main characteristics of each generation and their main values and expectations. Should anyone make an effort in understanding these values and characteristics, there would be no gap (Giancola, 2006; Gravett, 2007) and we hope that this article adds to the process of clarification.

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HUMAN RESOURCE MANAGEMENT IN CHINA UNDER ECONOMIC GLOBALIZATION

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Abstract: *Economic globalization is the development characteristic and advantage of modern economy, especially the in-depth development of knowledge economy and people-oriented era, which has become the decisive factor of the world economy in the 21st century. In this context, competition among countries increasingly revolves around the quantity, quality and development level of human resources. This transformation has brought both opportunities and challenges to human resource management (HRM) in China. Economic globalization has prompted China's human resources management concepts to be re-examined and updated, and the field of human resources management has shown a more diversified pattern. The subjects of human resources management are constantly changing, and it is necessary to adjust the human resource's structure and improve the overall quality of the workforce. While economic globalization has brought opportunities to China, it has also brought tremendous pressure to China's human resources management. Fierce international competition has posed a severe test to human resources and challenged traditional human resource management methods and structures.*

This article deeply explores the impact of economic globalization on human resource management in China. It analyzes how China's human resources management responds to the emergence of diverse talent market, the growing demand for cross-cultural skills, the fluidity of global talent flows, the need for technology and digital transformation, and the regulation and compliance faced in operations challenge. Globalized environment. By understanding and responding to these changes, China's human resource management can proactively respond to the changing situation and seize the opportunities brought by economic globalization.

Keywords: *human resource management; Chinese economy; globalization.*

1. Introduction

Economic globalization is a notable trend in the current development of the world economy, with the arrival of the knowledge economy era and the human-centered era. The process of economic globalization has further accelerated as human society enters the 21st century. Competition between countries is more and more focused on the quantity and quality of human resources, and more concerned about the degree and level of human resources development (Stofkova & Sukalova, 2020). Economic globalization has brought opportunities to China's human resources management, which promotes the updating of the concept of human resources development, diversifies the main body of HRM, pushes forward the adjustment of the human resources structure and the improvement of the quality of human resources, and speeds up the process of the marketization of the allocation of human resources (Liu, 2010). Economic globalization also makes China's human resources management face a serious challenge. Economic globalization has also put China's HRM to a severe test, confronting human resources with fierce international competition and causing a serious impact on traditional HRM and structures (Xie et al., 2013). This paper discusses the changes and challenges of China's HRM under the conditions of economic globalization.

2. Diverse Talent Market

In any analysis of the Chinese economy, great care is needed, so the following is an exploration of data, academic findings and empirical studies.

Citing data from the Ministry of Commerce (MOFCOM), the total number of employees of foreign enterprises was 3.393 million at the end of 2017, 3.595 million at the end of 2018, and 3.744 million at the end of 2019. Meanwhile, the proportion of hiring foreign employees has been increasing year by year, at 50.4 per cent in 2017, 52.2 per cent in 2018 and 60.5 per cent in 2019. The research of the white paper on the overseas talent development of Chinese enterprises shows that 88 per cent of enterprises have employment needs overseas, with 34 per cent of the surveyed enterprises saying that there is a great demand for talent in the future. Therefore, the white paper concludes that the rising scale of overseas hiring by Chinese companies signals an increase in the degree of internationalization of Chinese companies (Zhang, 2021). Molankal (2015) declares that globalization has led multinational corporations to expand their operations in China, which has resulted in

a more diverse and competitive talent market. The need for Chinese firms to adapt to and attract employees from different cultural backgrounds and countries has posed new challenges for human resource management.

With the rise of the Chinese economy, more and more multinational companies are choosing to set up operations in China, leading to a more diverse and competitive talent market. Chinese companies need to adapt to and attract employees from different cultural backgrounds and countries, which poses new challenges for human resource management. This requires HR managers to be more innovative and strategic as they need to compete with international companies for high quality employees. Globalization is likewise driving employees to be more willing to look for job opportunities on an international scale. Chinese professionals may choose to work in other countries, making HRM less focused on the local market and more broadly focused on finding and retaining talent on a global scale. This requires HR managers to be more actively involved in international recruiting to attract foreign talent to join Chinese companies. At the same time, Chinese companies need to consider how to nurture and support employees' career development globally and promote cross-border mobility to better meet business needs (Aguilera & Dencker, 2004; Baruch, 1995).

Haddock-Millar et al. (2015) consider that this implies situations where employees from different cultural backgrounds work together in the same organization. Chinese companies need to adapt and manage multicultural teams, which includes addressing issues such as language barriers and understanding different cultural values and habits. HR managers need to have cross-cultural management skills to ensure team synergy. In this diverse talent market, Chinese HR managers need to have a broader perspective and strategic vision to better adapt to changes in the global business environment through innovative recruiting strategies, training programs, and cultural management practices to ensure that their companies can differentiate themselves from the international competition. Alshaabani et al. (2022) shows that diversity management has a positive impact on workplace engagement.

China Railway Construction Corporation ranked 6th among the "Top 500 Chinese Enterprises". There are currently 4,576 employees stationed abroad and 10,837 laborers; there are 694 foreign employees and 42,536 foreign laborers. China Railway Construction has always insisted on strengthening ideological work, and coordinated and orderly promoted the "big overseas" business structure. It has carried out construction and related businesses in 71 countries and regions and has successively undertaken the construction of a large number of projects such as the Mecca Light Rail in Saudi Arabia and the second

phase of the Anyi High-speed Railway in Turkey. Well-known overseas projects. The compound growth rate ranks among the best among state-owned enterprises, playing an important role in promoting my country's high-speed rail to go overseas and enhancing international competitiveness. In overseas projects, problems of difficult communication and coordination often arise. Overseas projects often fail to evaluate bids, sign contracts, and start construction according to the time specified in the bidding documents. Suspension or even shelving or repeated design changes are more arbitrary and less efficient. Low. To solve this problem. Group HRM recruits a large number of overseas employees. In addition to design, consulting, supervision and other positions, employees who understand local customs and customs are also hired to help the group carry out its work. Colleague significance attracts and selects outstanding young and middle-aged cadres to work in overseas political positions. The Group actively organizes team activities to help expatriate employees understand some foreign customs and habits, enhance their ability to distinguish right from wrong, honor and disgrace, beauty, and ugliness, and correctly view the differences between China and foreign countries. culture. China Railway Construction vigorously advocates the corporate culture of "harmony and win-win, happy work, and decent life". Attracting the common interests of Chinese and foreign employees, we aim to achieve a win-win situation between corporate vision and personal values and provide every employee with opportunities to display their talents. The stage and comfortable and warm working and living environment stimulate the spiritual motivation of Chinese and foreign employees to unite and collaborate (Central Enterprise Party Building Ideological and Political Work Research Association, 2016).

3. Demand for Cross-Cultural Skills

The impact of multiculturalism brings opportunities for the integration and adjustment of human resource management in Chinese enterprises. Foreign investment in China, while bringing capital, technology, and products, also brings new management style, new corporate culture, and values, which inevitably triggers the impact and collision of multiculturalism. Reflected in the enterprise human resource management, the cultural conflict between Chinese and foreign enterprises and the difference in corporate values are the main obstacles encountered by multinational corporations operating in China. How to overcome the differences between Chinese and foreign cultures and carry out effective cross-cultural management is a major challenge for multinational corporations in China (Zhang & Wang, 2010; Warner, 2011).

Li (2003) points out that Chinese local enterprises, especially private enterprises in learning, learning from foreign enterprises in human resource management experience, often show a strong ability to learn and learn from, greatly accelerating the Chinese enterprises in human resource management changes and adjustments, and drive the improvement of the overall management level. For example, Haier, Lenovo, Huawei, and other enterprises are not inferior to foreign-funded enterprises in this respect. In addition, after entering China, foreign-funded enterprises usually gradually promote the localization of human resources for the sake of competition and management costs, and these strategies have brought a great opportunity for the integration and adjustment of human resources management in Chinese enterprises, thus further accelerating the trend of China's enterprises' human resources management in line with the international standards, in order to comprehensively enhance the competitiveness of China's enterprises' human resources.

Chinese companies often deal with employees, customers, and partners from different cultural backgrounds. HR professionals need to understand the differences between cultures, including language, communication styles, values, and work habits, to ensure effective communication and collaboration. HR managers also need to promote teamwork and collaboration. This may involve training employees to improve their cross-cultural sensitivity and collaboration skills, as well as building a common team culture. Leadership in cross-cultural environments requires a greater emphasis on flexibility and adaptability. HR managers need to develop leaders with cross-cultural leadership skills, including an understanding of and respect for different cultural management styles, as well as the ability to build effective leadership relationships on diverse teams (Friedman, 2007; Rosenzweig & Nohria, 1994). Garamvölgyi & Rudnák (2023) conclude that cultural intelligence mapping in diverse workplaces helps to reduce conflict and misunderstandings, thereby facilitating production efficiency.

As companies expand into the global marketplace, HR managers must have global recruiting skills. This includes understanding the labor markets, recruitment channels, and regulations in different regions to ensure that the company can attract the best talent that meets the requirements of working across cultures. Providing cross-cultural training also becomes critical at this point to help employees adapt to the new work culture and environment. This may involve language training, cross-cultural communication training, and cultural sensitivity training to improve employees' ability to adapt in a globalized work environment. The enhancement of cross-cultural communication skills will help Chinese companies better adapt to global business challenges

and build strong international competitiveness (Xiang et al., 2023; Ansari et al., 2014; Morris & Cynthia, 1992).

Yan et al. (2018) explores the following in their study: Guangzhou Peugeot was established in 1985. It is an automobile manufacturer jointly operated by Guangzhou Automobile Factory, French Peugeot Automobile Company, China International Trust and Investment Corporation, International Finance Corporation and BNP Paribas, with a total investment of 800 million French francs. Guangzhou Peugeot has more than 2,000 employees and is jointly managed by Guangzhou Automobile Manufacturing Plant and French Peugeot Automobile Company. The contract stipulates that the general manager before 1994 was French, and at least one of the two managers in any department of the company must be French. As of August 1997, Guangzhou Peugeot had accumulated losses of RMB 1 billion, and its actual annual production volume was at its peak of 20,000 vehicles, far from reaching the annual production capacity of 150,000 vehicles stipulated in the national industrial policy. In October 1997, France announced its divestment and Guangzhou Peugeot was disbanded. It is the first joint venture car company to withdraw from the Chinese market. In addition to the differences between China and France on some major issues, another important reason for the disintegration of Guangzhou Peugeot was the failure to properly handle the differences and conflicts between Chinese and foreign cultures. At the beginning of Sino-French cooperation, almost all the principal persons in charge of important management positions such as general manager, department managers, and technical supervision at Guangzhou Peugeot Company were French personnel. They adopted a rigid and coercive approach to implement a full set of French-style management, which was incompatible with China's traditional concepts and culture. This led to strong dissatisfaction among Chinese employees, which triggered an employee strike, which was eventually mediated by the Chinese government and the French Consulate. Afterwards, the Chinese employees expressed their true feelings, "We cannot accept the French management style, and we cannot stand the anger of foreigners." The fundamental reason for this is precisely the conflict of concepts and cultural conflicts between China and France.

4. Global Talent Flow

Jiang & Zheng (2022) states that with the deepening of economic globalization, especially after China's entry into the WTO, Chinese enterprises will not only face competition from global enterprises in terms of products, technology, and markets, but also face more severe challenges in human resources development and management. With the gradual expansion of the scope of market access, the market is

more open, in some areas, especially the traditional monopoly industries, high-tech industries and finance, insurance, securities and other new tertiary industries will face more intense competition for talent, and foreign capital into the first action will be the use of its strong capital to compete for talent with Chinese enterprises.

For a long time, China's enterprise human resource management reform lagging, with the market economic system and economic globalization of the competitive environment is not compatible. At present, China's enterprise human resource management there are still many problems, such as too many people, low labor productivity, personnel management means backward, incentives and compensation system is not reasonable, etc., these problems seriously affect the core competitiveness of China's enterprises to cope with the challenges of economic globalization. It can be seen that the process of economic globalization of China's enterprises within the human resources management put forward higher requirements, it fundamentally requires China's enterprises to human resources management system and management methods to change to make the corresponding response (Chen et al., 2015).

The main comparative advantages of developing countries are abundant resources, broad markets, and cheap labor. Economic globalization. However, this has led to changes in the original country-to-country and region-to-region relations. Resource advantages and cheap labor do not necessarily translate into economic advantages, nor does geographical distance necessarily affect economic interaction and economic development (Pekarskiene et al., 2017).

China's enterprises, especially state-owned enterprises in per capita labor productivity and corporate profits and multinational corporations have a relatively large gap, often in a dilemma. Such as employee income for a long time lower than the average level of the same industry in the labor market, so that the brain drains aggravated; and foreign enterprises income level close to the result of the rapid rise in labor costs, will offset and reduce China's enterprises in the labor price advantage, weakening the enterprise's ability to compete in the market (Burns & Wang, 2010; Chan & Edward, 2007).

Choi et al. (2000) believe that on the other hand, due to the drive for globalization, Chinese companies often need to send employees to work in other countries or attract foreign professionals to work in China. This requires HR managers to have knowledge and skills in international HR management. HR managers need to develop effective recruitment plans to attract employees with international experience and cross-cultural skills through globalized recruitment channels.

Multinational companies often have multiple branches around the world, resulting in employees located in different countries. HR

professionals need to ensure synergy and efficient communication within the company. MNCs need to take into account the salary levels and benefit systems in different countries and develop reasonable international compensation policies to ensure that employees receive fair and competitive compensation packages globally (Gomez & Sanchez, 2005).

In the view of Zhou & Martocchio (2001) to cope with global talent mobility, companies need to invest in advanced talent management software for managing employee information, performance evaluation, and training tracking on a global scale. These digital tools can help increase efficiency, reduce errors, and meet the management needs of multinational companies.

In the context of global talent flow, Suning Appliance has proposed an employment method. Flexible employment refers to the hiring of international experts through project systems and short-term contracts. This employment model means that companies hire employees in the form of part-time, temporary, part-time, etc. according to their own business needs to achieve efficient allocation of human resources in the global talent circulation market. Compared with traditional full-time employment, flexible employment is more precise and flexible, reducing the company's labor costs and providing employees with more job opportunities and flexibility. Suning has launched a "Talent Sharing Plan" to recruit employees globally based on their positions to achieve re-employment, improving efficiency and flexibility. The practices of these companies fully reflect the advantages of the flexible employment model. It can not only meet the company's manpower needs in a specific period, but also improve work efficiency and flexibility. With the popularity and development of flexible employment models, more companies will adopt this flexible employment approach to cope with uncertain market environments and business needs (Wu, 2020).

5. Technology and Digital Transformation

Digital technologies represented by artificial intelligence, big data, cloud computing, the Internet of Things, and blockchain are continuously disrupting the way people work and live. New technologies are also giving rise to new business models (Zhu, 2021).

The traditional role of HR in the past was to support the business, mainly with transactional work. Then to business partners, transactional work supported while helping business teams improve performance. However, in the digital era, the HR role will be transformed to free itself from transactional work and shift toward effectiveness and efficiency (Stone & Deadrick, 2015; Zhu, 2021).

Chinese companies have introduced advanced HR information systems and digital tools to improve efficiency, optimize the recruitment process, and conduct performance management. Chinese companies have adopted advanced digital recruitment platforms, such as smart recruiting software and online interviewing tools, to more efficiently screen and recruit talent globally. As technology evolves, HR management increasingly relies on big data analytics to understand key metrics such as employee performance, satisfaction, and turnover rates. This helps HR develop more effective strategies to improve employee retention. The widespread use of HRIS has led to more integrated and automated HR management, from recruitment and training to payroll, improving management efficiency. Mobile apps and online platforms make real-time feedback possible, helping management communicate with employees in a more timely manner, which is conducive to building a team culture (Munoz, 2005; Shao, 2011) .

According to Luo et al. (2017) another convenient manifestation of digital transformation is in online training and learning platforms, which Chinese companies are increasingly inclined to adopt in order to allow employees to access training resources and improve their professional skills anytime, anywhere on a global scale. By VR and AR technologies, Chinese companies can provide a more immersive training experience, especially in simulating real-world work scenarios and skills training.

In the case of BBK Group, for example, its digital sharing platform for human resources is divided into three parts: front, middle, and back. The front office is directly related to business departments and employees, and through the four centers of "talent acquisition, compensation sharing, talent development, and employee relations", the front office can undertake nearly 70% of HR operational affairs; the middle office is mainly responsible for human resources budgeting, organizational design, recruitment planning, etc., and at the same time carries out the work of resource allocation and cultural care; the back office is responsible for performance management, compensation system, and cultural care; and the back office is responsible for performance management, compensation system and training. The back office is responsible for performance management, compensation system and information system planning. Such a policy allows HR to spend more time on business innovation. Traditionally, HR is a partner of the business department, cooperating with the business to do a good job in human resources. In BBK Group, HR is not to work with the business, but to become a part of the business, so that "you have me, I have you". In the past, HR was an independent position, and HR entered the business department to support the work. Now, as a comprehensive management position, the HR position is directly put

into the business department, so that "business is the business of human resources, human resources is the business of human resources", and HR reports in both directions, not only to the business, but also to the human resources, so that it is integrated with the business department (Gao, 2020).

6. Regulatory and Compliance Challenges

HRM faces more complex regulatory and compliance challenges due to the multiple countries and regions involved. HR professionals need to keep their legal knowledge up to date to ensure that the company operates in a globally compliant manner.

Globalization makes it imperative for companies to comply with regulatory standards in different countries and regions, such as labor, employment, and human rights laws. As Chinese companies expand globally, they must understand and comply with these international regulations to ensure their global business operates legally compliant. The cross-border nature of the employment relationship complicates the regulations governing employees. Understanding the rights and responsibilities of employees in different countries and ensuring that contracts and policies comply with local regulations are important challenges for HR management. At the same time, HR management in multinational organizations involves the movement of large amounts of employee data. Different countries have different regulatory requirements for local storage and processing of employee data. Chinese companies need to develop data privacy policies globally to meet the requirements of local regulations. Compliance challenges include ensuring that this data is appropriately protected during international transfers in line with local data privacy regulations, such as Europe's General Data Protection Regulation (GDPR) (Gómez, 2004; Murphy, 2018).

The regulatory environment in different countries and regions is constantly changing, especially in terms of labor and employment law. HR managers need to remain sensitive to these changes and adapt company policies and procedures in a timely manner to ensure compliance. To respond to regulatory changes, HR departments need to provide employee training to ensure that they understand and comply with new regulatory requirements (Hughes, 2018; Clardy, 2003).

Yu (2023) declares that when faced with these regulatory and compliance challenges, Chinese companies often respond by establishing or hiring professional legal teams, regularly training HR professionals, and investing in compliance software and technology tools to ensure that their companies are legally compliant with HR management globally. Bank of Hunan, to effectively prevent the risks

of employment, improve the level of employment management and build a harmonious labor relationship, invited lawyers from Hunan Xiangjun Luhe Law Firm to conduct legal training lectures on human resources topics for the personnel departments of the whole company.

7. Conclusion

Economic globalization has had a profound impact on human resource management in China. With the influx of multinational corporations (MNCs) in the Chinese market, the intensification of competition, and the changes in technology and industrial structure, human resource management has been faced with multifaceted challenges.

Economic globalization has brought profound changes to human resource management in China. With the opening of the global market and multinational corporations taking root in China, human resource management has faced multiple challenges and opportunities. First, the integration of multiple cultures has become a key issue in management, requiring HR professionals to have cross-cultural communication and teamwork skills. Second, the highly competitive global market requires companies to pay more attention to attracting, cultivating, and retaining high-quality talent, driving innovation in compensation and benefits, training, and development. The drive for technological innovation also means that employees need to continually upgrade their skills, making training and development programs particularly important. In addition, the establishment of global supply chains has created a need for HR management to be more flexible in responding to international recruitment, teamwork, and management challenges.

Chinese companies must adapt to multicultural teams, flexible employment relationships and adherence to global standards to attract and retain high-caliber talent. In the wave of globalization, training and development, internationally standardized compensation packages, global teamwork, and data-driven decision-making have become key elements of successful human resource management.

At the same time, factors such as social responsibility, mobile workforce management and risk management need to be emphasized. Against this backdrop, HRM is no longer limited to a local scope, but requires a globalized strategic vision to adapt to an increasingly complex and diverse global business environment.

Successful HRM requires a greater focus on cultural adaptability, employee development and the ability to adjust in tandem with the global marketplace, thus effectively driving companies to achieve competitive advantage on the global stage. In this evolving environment, Chinese companies need to be flexible, innovative, and continuous learners to adapt to the opportunities and challenges brought about by globalization and to achieve sustainable development

in human resource management.

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THE ROLE OF THE STEP-BY-STEP EDUCATIONAL MODEL IN THE DEVELOPMENT OF COMMUNICATION AND LEARNING BEHAVIORS THROUGH POSITIVE INTERACTION AT AN EARLY AGE

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Abstract: *The "Step-by-Step" program promotes the desire for permanent knowledge and learning as essential for today's child. This program gives children the opportunity to be open in the future to the new things they will come into contact with, to other creative and modern activities. The study presents the experimental research that we carried out starting from the idea that if the educational alternative "Step by Step" is used, then the children get more involved in learning than in the individual or frontal approaches specific to traditional education. The children involved will show their desire and interest to share with others what they experience, and this leads to a permanent motivation for knowledge and learning. This implies a development of the language, and an increased efficiency of the act of learning, and this type of learning will open to other creative and modern activities.*

Keywords: *educational alternative Step-by-Step; language development in preschool children; literacy centre; preschool education; innovative approaches; experimental research.*

Introduction

Modern education through the use of alternative educational methods is based on the psychological acquisition of the child's development and aims to cultivate all his potential qualities. Contemporary research on child development supports the fact that different people develop at different rates and that there are individualized critical periods of development.

Within the "Step-by-Step" educational alternative, the child learns through discovery in his interaction with the environment, the educational process is centred on the child, the education is individualized, the teaching is oriented according to the child's needs, the children have the opportunity to choose the task and the centred they want to carry out their activity, children learn in activity centres, there is a close relationship of communication and collaboration in the

team of educators (educators, assistant educators) and parents, parents are part of the children's education process and effectively participate in the classroom. “This pedagogical approach enables the student to express his critical and creative thinking with enthusiasm and sincerity. In this context, students will demonstrate behaviours based on control and self-control, on self-control and autonomy, so that the rules of the class will not have to be imposed from the outside, but will be established and negotiated within the group.” (Catalano, 2018)

Through the content of this paper, a critical attitude is developed regarding the “Step-by-Step” educational alternative, trying to show that the “Step-by-Step” alternative is not a better or less good way than other learning methods, be they traditional or alternative. The alternative method “Step by Step” concentrates on a context of educational experiences that allow the development of the child as a unique personality and that cultivates respect for the values of humanity, fundamental human rights, and the diversity of cultural traditions.

In the spirit of social openness and modern reform, we believe that “Step-by-Step” is an alternative in education that enjoys success and deserves to be approached and applied with great confidence. The “Step-by-Step” alternative is a modern, complex, complete, accessible and viable method regarding the free, harmonious development of the preschool child’s personality.

1. Theoretical Approaches of the Step-by-Step Alternative

Throughout their lives, regardless of where they live, today’s children will face socio-political, ecological, scientific, technological, industrial, etc. changes. Thus, taking into account the rapid changes in today’s world that can only be faced through a full human commitment, cognitive, affective, and motor, educating the child's desire to learn permanently has become imperative.

The current education reform provides for individualized education, allowing each child to develop and develop according to his characteristics. Following this desire, the “Step-by-Step” program was introduced in our country, which provides a foundation for meeting everyday challenges. This program is intended for children in which they can be enrolled from birth to the age of 13. The families of these children are co-participants in the program.

Educational organizational climate is a broad concept that encompasses various aspects of the school environment, including social, psychological, affective, intellectual, cultural, and moral dimensions. Organizational climate can have a significant impact on teachers’ attitudes, beliefs, and behaviours, and ultimately affect the quality of education provided to students.

(Redeș et al, 2023).
In Romania, the program started in 1994 under the name Head Start, and in 1995 it took the name "Step-by-Step" taken from the USA and introduced into the Romanian language ("step by step").
The initiative to introduce this educational alternative belongs to the Soros Foundation for an Open Society and has the approval of the Ministry of National Education. Starting from March 1998, the Mare program.
"Step-by-Step represents an alternative education for children, from birth to adolescence that promotes discovery, thus creating a friendly and accessible environment for students, encouraging curiosity, exploration and discovery." (Lica et al, 2020, page 13).
"The basis of Step-by-Step programs for children is a firm belief in the principles of democracy. Both the preschool and primary programs encourage children to become active citizens and to appreciate the values inherent in a democratic way of life." (Burke-Walsh, 1999, p. 13).
The educational alternative "Step-by-Step" offers strategies that satisfy the interests and different cognitive styles of children, proposes active methods that facilitate the formation of the child's personality, promotes a quality educational experience for both children and their families and creates a child-centred program. Within this didactic program, it can facilitate learning based on children's interests, and the program can include all children.
The instructive-educational activity within the "Step-by-Step" program has as its configuration the group activity and the optional activities in activity centres carried out throughout the day. The success of individualization has its starting point in the sectorized activity by centres. There are ten activity centres: art, building materials, cooking, role play, literacy, math/manipulative games, music, outdoor games, sand and water, and science. Activity centres educate the child's self-confidence, discipline, courage, moral qualities, positive traits, imagination and creativity, encourage verbal and non-verbal communication, and develop personality.
In order to optimize the didactic activity, the teacher from the educational alternative Step-by-Step will take into account the granting of a greater degree of autonomy to the students, the organization of information according to the student's requirements, the stimulation of learning motivation, the creation of a favourable climate for the manifestation of positive attitudes by the students (Albulescu et al, 2016).
This educational alternative can be considered viable for the future of education because it educates the child on the complexity of his personality. The educational alternative also offers an enviable

environmental setting, preferable to rooms with modest furniture and materials that involve the involvement of a large number of people permanently around the child and acting in his favour. The "Step-by-Step" educational program is a useful, accessible form in preschool education, which provides quality education and for quality, encouraging the development of the child's personality, giving him a sense of security, self-esteem, confidence in his abilities, motivation and curiosity.

The 21st century is characterized by deep and rapid changes in society. The various social, political, environmental, scientific, technological and industrial changes have a special impact on man. Education must come to the aid of man by orienting the school towards a new way of learning that ensures the individual the possibility to respond to unforeseen events. This means innovative learning with the attributes: of participation and anticipation. Participation means awareness of the rights and responsibilities of each individual, as well as cultivating the capacity for communication, cooperation and empathy. Anticipation refers to the individual's ability to respond adequately to events that society will generate. Also, "in the Step-by-Step alternative, special importance is attached to a stimulating learning environment, based on mutual respect, democratic principles and the active participation of students and families in the life of the classroom". (Muste & Albulescu, 2020, page 35).

One of the main orientations manifested, today, in modern didactics, focuses on distancing itself from school methods based on memorization and repetition and promoting methods that centre on the active participation and direct or indirect interest of the student in his own training. The characteristics of these methods, which ensure a high level of student co-participation, represent key elements that must be taken into account in the construction of any training and education situation. (Roman, 2014)

This perspective orientation is a natural consequence of the accelerated pace of evolution and transformation of history. This implies the revision of some objectives and the establishment of new hierarchies within them, the education of the ability to continuously adapt to change comes to the fore. For this new type of education, the methods and techniques must be applied in the future. The change in educational technology implies a shift in emphasis to heuristic teaching-learning methods and the technical means necessary for a more accentuated individualization of education. It is then aimed at changing the content of education by selecting and processing knowledge according to the principle of interdisciplinarity. The main objective of this new type of education is, according to A. Toffler, "increasing the adaptability of the individual" so that he can adapt

quickly and easily to a permanent novelty.

2. The role of the Step-by-Step educational model in the development of communication behaviours and learning through positive interaction

The objectives of the experiment:

- language development at the preschool education level within the literacy centre from the educational alternative "Step-by-Step" by applying the means specific to language education activities;
- the application of the two educational alternatives in parallel, namely the "Step-by-Step" educational alternative and the traditional education;

Research hypothesis

The participation of preschool children, level 4-5 years, in the Step-by-Step program within the Literacy Centre, improves age-specific communication behaviours.

Research Methodology

The methods used in the research:

- the psycho-pedagogical experiment;

  The psycho-pedagogical experiment is the main method aimed at testing the formulated research hypothesis, to study the impact of the independent variable on the dependent variables.

- observation method;

  The observation method aims at the intentional and systematic tracking of an individual or phenomenon, in its natural state, in familiar conditions of existence and manifestation (Bocoș, 2003). An observation sheet will be used.

- the method of analysing the products of the activity;

  The method of analysing portfolios/activity products is a method that presents the actions and results of the subjects, in correlation with the actions carried out by them. The research method of school and curriculum documents.

The analysis of the children's products – was carried out in parallel with the two groups, namely the "Step-by-Step" group (Medium B) and the traditional education group (Medium A), the control group.

Research sampling:

- We started the experiment with the sampling operation establishing two samples: the experimental sample (experimental group) and the control sample (control or control

group). The first group is from Kindergarten with Extended Program No. 14 from Arad where I carry out my activity, namely the middle group "B", the teaching group in the educational alternative "Step-by-Step" and the parallel group also from the same kindergarten, middle group "A", control group, group with teaching in education traditional.

- The experimental group, the middle group "B" of teaching "Step-by-Step" has a population of 25 subjects aged between 4 and 5 years. We applied the "Step-by-Step" educational alternative to this group and deliberately intervened in the educational action. The activity was carried out respecting the characteristics of the step alternative.
- The control group, the middle group "A" of traditional teaching has a total of 25 subjects aged between 4 and 5 years. In this group, the language and communication activity was carried out based on the document Curriculum for Early Education (2019).
- We staggered the experiment over a period of 9 months (36 weeks). We planned two joint language and communication activities per week on Tuesdays and Thursdays, and on the other days, we opened the Literacy Centre daily where the children carried out intellectual activities specific to language development.

Stages of the experiment:

The psycho-pedagogical experiment was based on the application of the means of carrying out the language education activity both to the Step group and to the traditional group and was carried out in 3 stages:

- The pre-test stage is necessary to establish the initial level of language development
- The formative stage is characterized by carrying out the teaching/learning process using specific means of carrying out language education activities, to develop children's language. This will be done differently, taking into account the specific characteristics of each educational alternative; educational alternative.
- The post-test stage is necessary to establish the degree of development registered following the factors of educational progress.

The didactic experiment:

Within the experiment, two groups were selected: the experimental group (Medium B) with teaching in the educational alternative "Step-by-Step" and the control group (Medium A) with

teaching in traditional education.

The initial test covered several aspects:

- the ability to transfer knowledge and skills
- skills within the curricular field
- the ability to apply knowledge and skills
- level of vocabulary development
- correctness of expression from a grammatical and logical point of view
- increasing the level of language development

Some evidence has been established that underlies this experiment. Based on these samples, the specific means of carrying out the language education activity were applied in both classes, through methods specific to each type of education to achieve an increase in the level of language development.

The evaluation samples that were the basis of this experiment were:

1. Retelling/reciting an incident/poem
2. The formulation of grammatically and logically correct sentences
3. Creating a story/scene from an imaginary story
4. Developing phonemic hearing, finding rhyming words
5. Retelling a scene from a well-known story, the ability to differentiate similarities and differences between characters
6. Integration of notions in a text

The testing was carried out based on a series of evaluation tests that were completed:

1. Telling/retelling a story/fragment: “The Purse with Two Coins”, “The Goat and Her Three Kids”, and “The Bear Tricked by the Fox” by Ion Creangă. (The children told/retold stories/fragments from their favourite works and stood out by using special expressions).
2. Recitation of well-known poems: “Rag” by Tudor Arghezi, “Gândăcelul” – “Dooblebug” by Otilia Cazimir, “The Lame Little Dog” by Elena Farago. (The children recited the well-known poems and recognized the event illustrated in the image by associating it with a poem/story; the poems were recited with expressiveness and coherence).
3. Determining the volume of the vocabulary (The children named the notions represented in the images and integrated them into a context; they also made sentences with at least three notions and found an adjective for each noun).
4. Checking the ability to generalize and the degree of acquisition of notions from various fields (The children

named the notions represented on the chips and identified the rhyming words, then the words were separated into syllables).

5. Determination of creative imagination (Children created a story/scene from a story with a given beginning, gave the story/scene a title, then drew a scene from the story).
6. Combining the educational alternative with other interactive learning methods (The "Double Bubble" interactive method was applied; the bubbles were filled with tokens representing the similarities-differences-common aspects of the story "The Old Woman's Daughter and the Old Man's Daughter")
7. Vocabulary enrichment as a result of the activities carried out (Children have made progress in terms of language development in the "Literacy" centre from the educational alternative "Step-by-Step").
8. Making up some grammatical structures according to modern principles (Stack's method). (The children made sentences according to Stack's principle; the speed and correctness of the sentences made were noted).

Table 1. **Analysis and qualitative and quantitative interpretation of the results:**

ITEMS	**NO. TOTAL OF CHILDREN**		**SUFFICIENT**		**GOOD**		**VERY GOOD**	
	GR. A	**GR. B**	**INITIAL GR. A**	**FINAL GR. B**	**INITIAL GR. A**	**FINAL GR. B**	**INITIAL GR. A**	**FINAL GR. B**
1	**25**	**25**	**28%**	**16%**	**44%**	**36%**	**28%**	**48%**
2	**25**	**25**	**20%**	**16%**	**48%**	**28%**	**32%**	**56%**
3	**25**	**25**	**24%**	**12%**	**40%**	**28%**	**36%**	**60%**
4	**25**	**25**	**36%**	**8%**	**48%**	**48%**	**16%**	**44%**
5	**25**	**25**	**32%**	**12%**	**32%**	**36%**	**36%**	**52%**
6	**25**	**25**	**40%**	**8%**	**28%**	**40%**	**32%**	**52%**

This last activity also constituted the end of the didactic experiment, following that its results will be quantified, the opportune assessments coming from the establishment of some comparative relationships. The final activity was structured in several stages, each of which has the purpose of ascertaining and recording the progress made in this

interval. As can be seen in the tables, the efficiency of using both alternatives is reflected in the children's results. Thus, the frequency of the qualification *very good* increased, while the frequency of the qualification *sufficient* decreased significantly regardless of the alternative used. Both groups made progress in developing communication behaviours

Table 2. Graphical analysis of the control group.

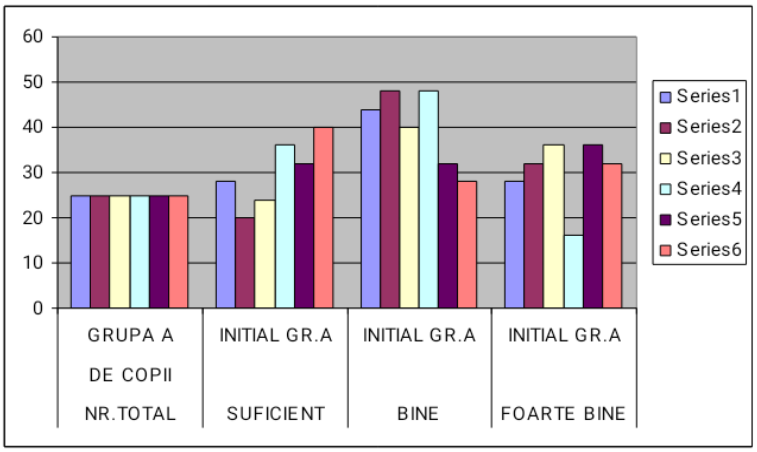
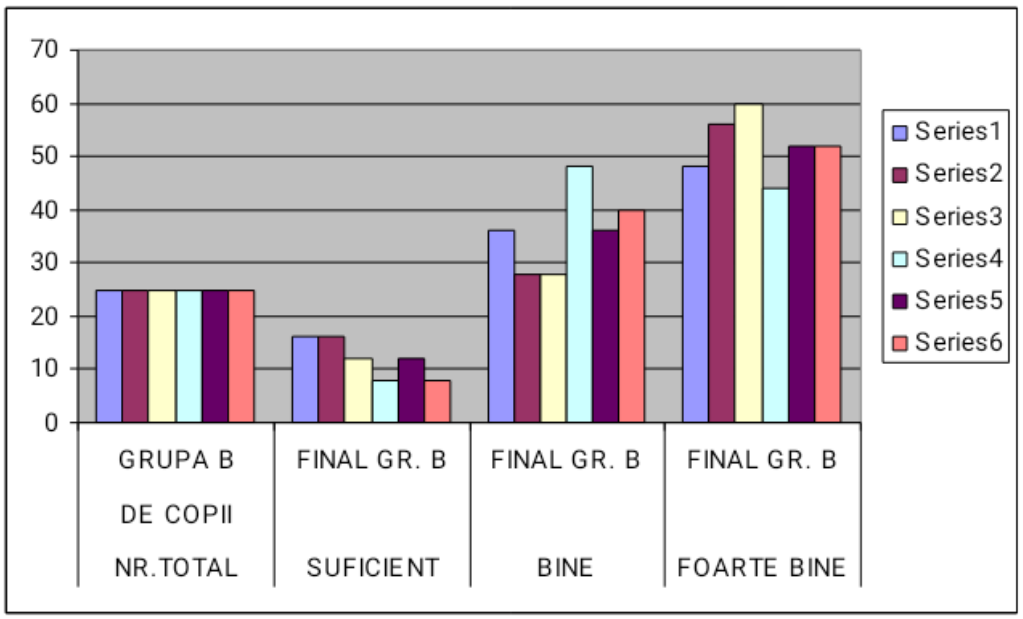


Table 3. Graphical analysis of the experimental group.



As a result of the tests carried out, a difference is observed in the percentages obtained in the two groups, however, the educator must support the child by orienting him towards innovative learning. Thus, we found that regardless of the educational alternative chosen, the

children developed their language, and made progress in learning and qualitative leaps from an educational point of view.

3. Conclusions

Within the "Step-by-Step" program, children develop in their own way and at their own pace, having their own temperament, learning style and family origins, the educational environment focused on the child's needs favours individualization and the expression of options; children accumulate knowledge through experiences and their own connections with the world around them, children benefit from a team of educators (two educators, assistant educators, parents) who will collaborate to facilitate the development, growth and progress of children, taking into account the interests, needs, their qualities and talents. Children harmoniously form their personalities and acquire the feeling of trust and respect.

Identifying the level of development of children's language at preschool age, the relationship between the child and the surrounding reality is broadened and complicated, and the forms and content of communication become wider and more varied. The need for communication is a natural need both in children's relationships in play and learning activities. Language acquisition is done globally, as a whole and not on component elements. The acts of communication: listening, speaking, reading, and writing are not acquired by children in limited and successive steps. The development and activation of the oral language involves the organization and planning of everyone's language experiences according to their own pace of development. The achievement of the reference objectives derived from the framework objectives is done throughout the entire period of the teaching process with the children, both in the chosen activities, carried out with small groups and individually, as well as in the common activities carried out with the whole group of children.

The "Step-by-Step" program offers an alternative in the education of pre-schoolers in a "step-by-step" manner, creating the foundation of the attitudes, knowledge, and skills that children need in the present and future times. The child is the most important in the act of education so all other educational acts start from the child. The three major features of the program ("Constructivism", "Developmentally Appropriate Practices", and "Progressive Education") consider the child as a whole, considering him a unique person worthy of respect and valuing aspects of his personality in order to integrate him with success in an open, modern and European society.

We can also conclude that the Step-by-step alternative allows careful observation of students' work and their results, leading teachers to pedagogical practices that improve performance, avoid overload, give

students safety and facilitate knowledge acquisition. (Catalano, 2017).
Through all the essential characteristics stated above, we argue the value and importance of the educational program for formal education in Romania at the level of preschool education.

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PREDICTORS OF UNDERGRADUATE SCIENCE EDUCATION STUDENTS' ENTREPRENEURIAL INTENTIONS IN GOVERNMENT OWNED UNIVERSITIES IN SOUTH-EAST NIGERIA

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Abstract: *The study examined the predictors of undergraduate science education students' entrepreneurial intentions in government owned universities in South-East Nigeria. Three research questions guided the study. Descriptive survey research design was used in the study. The population for the study consisted of all the 472 undergraduate science education students in two federal government owned universities in South-East Nigeria, this include Nnamdi Azikiwe University Awka (261 students) and University of Nigeria Nsukka (211 Students). Simple random sampling was used in selecting the sample for the study. The sample size for the study consists of 127 students. The research instrument was a structured questionnaire on four-point Likert scale adapted from Lee, et al. (2012) and Manzoor, Meheraj and Wali (2020), in addition, the research instrument was validated by three lecturers in the Department of Science Education, Nnamdi Azikiwe University, Awka. Similarly, the reliability of the instrument was calculated using Cronbach Alpha reliability technique and a value of 0.76 was obtained. The data collected was analyzed using mean and standard deviation. The finding of the study shows that attitude, subjective norms (SN) and perceived behavioral control (PBC) have influence on entrepreneurial intentions (EI) of undergraduate science education students. Moreover, students' attitude accounted to a high extent their EI than SN and PBC*

which were to a moderate extent. Based on the results, it was recommended that Parents should encourage their children to associate themselves with entrepreneurship-based groups that support entrepreneurship since social norms have a significant influence on entrepreneurial intention and Government should establish entrepreneurship networks in universities and communities to support entrepreneurship activities set up.

Keywords: Science Education; Undergraduate Students; Entrepreneurial Intentions and South-East Universities in Nigeria.

Introduction

The unemployment rate has become a serious national issue in Nigeria as statistics shows that the level of unemployment has increased from 37.7% in 2022 to 40.6% in 2023. There is also, a continuous inflow of graduates from both private and public institutions every year into the job market, hence, an expected rise in the unemployment rate is envisaged. For this reason, graduates are encouraged to show positive attitude towards entrepreneurship and harness the numerous opportunities in Nigeria. This is in line with the assertion of Ojeifo (2012) who averred that the major aim of entrepreneurship education in tertiary institutions is to provide students with the needed knowledge, skills, attitude and motivation to encourage entrepreneurial success in a variety of ventures.

The strategic significance of entrepreneurship in maintaining and advancing economic and social development, generating and repurposing jobs, innovation, and productivity has drawn the attention of governments, legislators, and business professionals (Mensah et al., 2021). Entrepreneurship, according to Ohanu and Ogbuanya (2018), is the capacity to generate, recognize, and seize economic opportunities in order to add value and turn a profit. Nwafor, Chinweuba-Eze, and Chukwuka (2021) opined that entrepreneurship entails the establishment, administration, and growth of a business with the utilization of required resources, including labor, capital, and materials. According to Galvao et al. (2017), entrepreneurship can also be defined as a cohesive action resulting from inventiveness, ingenuity, or a fresh perspective on an existing concept. It acts as a career option, a catalyst for growth, and an engine for raising employment and national economies' performance (Tleuberdinova et al., 2021). Gieure et al. (2020) argued, in the same vein, that entrepreneurship fosters both social and economic growth and a decline in unemployment. Therefore, entrepreneurship education should be a top priority for the government when it comes to promoting entrepreneurial goals. Furthermore, entrepreneurship education was found by Fayolle and

Gailly (2015) to be one of the primary determinants influencing entrepreneurial intention. The formation of an entrepreneurial intention is one step in the intricate, multi-stage process that is entrepreneurship, according to Hisrich et al. (2013). An individual is more likely to carry out a specific behavior successfully if they have a stronger intention to do so (Maresch et al., 2016).

The secret to understanding human behavior is intention (Sheeran, 2002 cited in Bell, 2019). Therefore, it was suggested by Zhao et al. (2010) that having an entrepreneurial intention is a crucial step in the process of becoming an entrepreneur. Therefore, students should be encouraged to take that step by developing those behaviors that predict an increase in entrepreneurial intention. Therefore, Karimi et al. (2016) argued that an individual's entrepreneurial intention may be interpreted as a reflection of their mental condition that drives them to pursue self-employment as opposed to employment. It comprises self-confidence, aspiration, and the ability to stand tall (Tsordia & Papadimitriou, 2015). According to Ajzen's (1991) theory of planned behavior (TPB), attitudes, social norms, and perceived control are the main indicators of behavioural intention. Therefore, the current study took these three factors into account and tried to find out if they could affect the entrepreneurial intention of science students. Subjective norm, also known as social norm, refers to the perceived social pressure (which can come from family, friends, and society) to engage in or not engage in a behavior. Attitude, on the other hand, refers to the degree to which an individual has a favorable or unfavorable evaluation of that behavior, such as a positive evaluation of starting a new business. A person's assessment of how easy or difficult a behavior is to do is known as perceived behavioral control (Ajzen, 1991).

The study of entrepreneurial intention (EI) according to Linan and Fayolle (2015) is a fast-developing topic of inquiry. Since studies on the desire to start a business have frequently been carried out in business schools with business students or undefined populations (Maresch et al., 2016) as well as students from a single academic discipline (González-Serrano et al., 2018) Recent research, however, has taken a bold step by combining students from several academic fields into a single sample (Koe, 2016; Muhammed, Alihu & Ahmed, 2015). For instance, Setuza (2016) carried out a study titled “entrepreneurial intentions among university student in East African Community: Cases of Rwanda and Kenya” and found out that subjective norm, personal attitudes and perceived behavioral control had positive influence on students’ entrepreneurial intention. Richmell, Acheampong and Owusu (2018) explored the factors that influence entrepreneurial intentions among students in Ghana. The findings showed that students’ exposure to other entrepreneurs and experienced

network are the most significant predictor of student entrepreneurial intentions followed by dissatisfaction with previous job and utilization of better opportunity in the market predicted student entrepreneurial intention. Abdulazeez (2022) also carried out a study on Determinants of Entrepreneurial Intention among Higher National Diploma Students of Polytechnics in Bauchi State and discovered that attitude, subjective norms and perceived behavior influence students' entrepreneurial intentions. In addition to the above reviewed studies in business schools and other disciplines, there is an urgent need to look into the predictors of entrepreneurial intention among science education students especially taking into cognizance the significant of science education to national development.

The development of an entrepreneurial society is significantly aided by science education and university education. Thus, all students at Nigerian universities are required to take an entrepreneurship education course. Undergraduate science education instruction in Nigerian tertiary institutions is designed to produce students with the methodology, knowledge, attitude, and science-related skills needed for national development. With options in Biology, Chemistry, Computer science, Integrated Science, Mathematics, and Physics, scientific education includes teaching science concepts, methods of teaching, and resolving misconceptions held by learners regarding science concepts (Nwafor, Chinweuba-Eze and Chukwuka, 2021). This implies that science education students in these options are exposed to scientific processes and principles, thereby, equipping them with the right scientific attitude, subjective norms and professional skills of a science teacher. These factors could play some roles in developing entrepreneurial intention in the students and provide the necessary networking support of entrepreneurs for their endeavors.

Given the dwindling number of employment available in the labor market, the researchers believe that initiatives to promote intention in student entrepreneurship are necessary. A study concentrating on the entrepreneurial intentions and the variables that influence entrepreneurial intentions is necessary since a variety of factors affect undergraduate students' capacity to engage in entrepreneurial behavior. In the light of this, the researchers deemed it fit to investigate the predictors of entrepreneurial intentions among undergraduate science education students in government owned universities in South-East Nigeria.

Purpose of the Study

The main purpose of this study is to investigate the predictors of undergraduate science education student's entrepreneurial intentions in

government owned universities in South-East, Nigeria. Specifically, the study was aimed to determine the extent;

1. Attitude influences entrepreneurial intentions of undergraduate science education students.
2. Subjective norms influence entrepreneurial intentions of undergraduate science education students.
3. Perceived behavioral control influence entrepreneurial intentions of undergraduate science education students

Research Questions

In other to achieve the purpose of this study, the following research questions were formulated to guide this study:

1. To what extent does attitude influence entrepreneurial intentions of undergraduate science education students?
2. To what extent do subjective norms influence entrepreneurial intentions of undergraduate science education students?
3. To what extent do perceive behavioral control influence entrepreneurial intentions of undergraduate science education students?

Significance of the Study

This study when successfully completed will be of great importance and assistance to the following; science education students, policy makers the society and future researchers.

Thus, this study is significant for the science education students on their future career path. By identifying their strengths and weaknesses as well as their intention, it provides a better choice for their career development. They are able to identify their personal characteristics (attitude and perceived behavioral norms) and this would help them in figuring out their intention towards being an entrepreneur.

This study is also important for policy implementation with respect to future development of entrepreneurial program for undergraduates. By having a good understanding on factors predicting entrepreneurial intention among students, the plans of the government to the students would be fully utilized. This research would provide insights to the state of entrepreneurship education for policy makers in Nigeria to inspire entrepreneurial intention, in turn, increasing new business venturing rate.

The findings of this study would help the society to understand their roles in enhancing the entrepreneurial intentions of undergraduate science education students and providing them the needed social support. Parents who are running a business could provide prior business knowledge and experience for undergraduate entrepreneurs in the country; people who are jobless may be hired by these

entrepreneurs, thus reducing the rate of unemployment. This would be beneficial to the society by providing better living quality and standards. Finally, the study would be a source of material, reference and useful guide to those that will engage in similar research work in the future.

Methodology

This study adopted a descriptive survey design. A survey design aims at collecting data and describing in a systematic manner the characteristics, features or facts about a given population; hence it is suitable for this research (Nwogu, 2018). The study was carried out using two federal government owned universities in Enugu State and Anambra State. Enugu state and Anambra state are two out of the five States of in South-East geopolitical zone of Nigeria. The population for the study consisted of all the 472 undergraduate science education students in two federal government owned universities in South-East Nigeria, this include Nnamdi Azikiwe University Awka (261 students) and University of Nigeria Nsukka (211 Students). The sample size of 127 undergraduate science education students was used for the study using simple random sampling techniques (by folding of papers). This consisted of 70 students from Nnamdi Azikiwe University Awka and 57 Students from University of Nigeria Nsukka. Hence, the sample size is made up 27% of the total population of the study. Sampling numbers 1-100 were written, folded and put inside a ballot box, the undergraduate science education students who picked from 1-70 in Nnamdi Azikiwe University were selected while those who picked from 1-57 in University of Nigeria Nsukka were also selected.

The instrument used for collection of data in this study was a 20 items four-points Likert scale structured questionnaire which was adapted from Lee, et al. (2012), Manzoor, Meheraj and Wali (2020) and Abdulazeez (2022) titled "Questionnaire on predictors of entrepreneurial intentions among undergraduate students of science education (QPEIAUSSE)". The instrument for the study was validated by three experts from the Department of Science Education, Nnamdi Azikiwe University, Awka. The reliability of the instrument was established to be 0.76 using Cronbach alpha formula. The questionnaire was administered to the respondents by hand delivery during which the intent of the research study was explained to them. It was collected back that same day. The data collected were analyzed using mean and standard deviation. The weighted mean of 2.5 stands as a critical value upon which acceptance and rejection of the responses are determined. Hence, any item with mean value equal to 2.5 and above was interpreted as "Agreed" (Accepted) while that from 2.49 and below was interpreted as Disagreed" (Rejected). Also, to

determine the extent of attitude, subjective norms and perceived behavioural control influence entrepreneurial intentions among science education students in South-East, Nigeria, the real limit of numbers was used as follows; low extent (2.49 and below); moderate extent (2.50-3.49) and high extent (3.50-4.00). This analysis was done using Statistical Package for the Social Sciences 25 (SPSS, Version 25).

Results

Research Question 1: To what extent does attitude influence entrepreneurial intentions of undergraduate science education students?

Table 1: Mean and standard deviation scores of the extent attitude influences entrepreneurial intentions of undergraduate science education students

S/N	ITEM	N	Mean	SD	Decision
1	I will prefer entrepreneurship for a career choice	127	3.78	0.42	High Extent
2	Being an entrepreneur implies more advantage than disadvantage to me	127	3.57	0.53	High Extent
3	A career as an entrepreneur is attractive to me.	127	3.90	0.30	High Extent
4	If I had the opportunity and resources, I would like to start a business.	127	3.63	0.52	High Extent
5	Being an entrepreneur means great satisfaction for me.	127	3.66	0.48	High Extent
6	Among various options, I rather be an entrepreneur.	127	3.28	0.69	High Extent
7	I will prefer to be an entrepreneur rather than an employee in a company.	127	3.79	0.43	High Extent
	Grand Mean and Standard Deviation	**127**	**3.66**	**0.27**	**High Extent**

The results in Table 1 show that all the items 1, 2, 3, 4, 5, 6 and 7 were to a high extent, since the entire items have mean scores within 3.50 to 4.00. The grand mean score of 3.66 was also obtained which shows that attitude influences undergraduate science education students' entrepreneurial intentions to a high extent. Moreover, the grand mean indicates that the respondents agree that attitude influences

the entrepreneurial intentions of undergraduate science education students in South-East, Nigeria.

Research Question 2: To what extent do subjective norms influence entrepreneurial intentions of undergraduate science education students?

Table 2: Mean and standard deviation scores of the extent subjective norms influence entrepreneurial intentions of undergraduate science education students

S/N	ITEMS	N	Mean	SD	Decision
8	My parents' opinion is important to me.	127	3.06	0.64	Moderate Extent
9	My close friends' opinion is important to me.	127	3.86	0.37	High Extent
10	People who are important to me should pursue a career as an entrepreneur.	127	2.87	0.62	Moderate Extent
11	In my University, students are actively encouraged to pursue their own ideas.	127	3.46	0.74	Moderate Extent
12	There is a well-functioning infrastructural support in the community for start-up of new business.	127	2.03	0.74	Low Extent
13	My friends see entrepreneurship as a preferable choice for me.	127	3.55	0.63	High Extent
14	My parents are positively oriented towards my future career as an entrepreneur.	127	2.95	0.60	Moderate Extent
	Grand Mean and Standard Deviation	**127**	**3.11**	**0.24**	**Moderate Extent**

The results in Table 2 indicate that item 12 was to a low extent while items 8, 10, 11 and 14 were to moderate extent and item 9 and 13 were to high extent. The high extent mean scores of items 9 and 13 reveals that importance of friends' towards promoting and increasing students' entrepreneurial intentions. Also, the grand mean score of 3.11 was gotten which shows that subjective norms influence undergraduate science education students' entrepreneurial intentions to a moderate

extent. In addition, the grand mean score indicates that the respondents agree that subjective norms influence entrepreneurial intentions of undergraduate science education students in South-East, Nigeria even though they do not have well-functioning infrastructural support in their community to start up a new business.

Research Question 3: To what extent do perceive behavioral control influence entrepreneurial intentions of undergraduate science education students?

Table 3: Mean and standard deviation scores of the extent perceived behavioral control influence entrepreneurial intentions of undergraduate science education students

S/N	ITEM	N	Mean	SD	Decision
15	To start a business would be easy for me.	127	2.54	0.68	Moderate Extent
16	To keep a business working well is easy for me.	127	3.45	0.65	Moderate Extent
17	I know how to develop an entrepreneurial idea.	127	3.74	0.46	High Extent
18	If I tried to start a business, I have a high probability of succeeding.	127	3.28	0.59	Moderate Extent
19	If I want, I could become self-employed after my studies.	127	3.82	0.38	High Extent
20	To start my own business would probably be the best way for me to take advantage of my education.	127	3.92	0.27	High Extent
	Grand Mean and Standard Deviation	**127**	**3.46**	**0.26**	**Moderate Extent**

The results in Table 3 show that items 15, 16 and 18 were to moderate extent while item 17, 19 and 20 were to high extent. Moreso, the grand mean score of 3.46 was also obtained which shows that perceived behavioral control influence undergraduate science education students' entrepreneurial intentions to a moderate extent. Moreover, the grand mean indicates that the respondents agree that perceived behavioral control influence entrepreneurial intentions of undergraduate science education students in South-East, Nigeria.

Discussion

The result showed that attitude influences undergraduate science

education students' entrepreneurial intentions to a high extent. Moreover, further analysis showed that attitude influences the entrepreneurial intentions of undergraduate science education students. This may be due to a developed interest in entrepreneurship among the science education undergraduate students after undergoing entrepreneurship as a course during their third year in the university. This is in line with the findings of Maes et al. (2014) who stated that personal attitudes and perceived behavioral are working indirectly with social norms in setting the person's intention in involving the entrepreneurship. In the same vein, Mumtaz et al. (2012), found that the undergraduate students' attitude has a positive impact on intention to choose entrepreneur as a career. Similarly, Abdulazeez (2022) and Ambad and Damit (2016) averred that students' attitude strengthens their intention to participate in entrepreneurship.

The findings of the study revealed a moderate extent of influence of subjective norms on entrepreneurial intentions of undergraduate science education students. Furthermore, subjective norms were showed to influence the entrepreneurial intentions of undergraduate science education students. The study indicated that universities in South-East, Nigeria do not have well-functioning infrastructural support in their community to start up a new business, though it acknowledges the important of friends in promoting students' entrepreneurial intentions. The lack of well-functioning infrastructural support might be due to the governments' lack of interest in proving infrastructures for different universities in the country. However, the doggedness of people like parents, friends and the community within the environment the school is located goes a long way to contribute to the influence of subject norms on entrepreneurship intentions of undergraduate science education students. This is in line with this Muhammed, Alihu and Ahmed (2015) who stated that subjective norm is a significant predictor of Entrepreneurial intention. This is in agreement with the findings of Zapkau et al. (2015) who stated that, the role of friends and roles models is prominent in influencing the decisions to become an entrepreneur. This is against the finding of Lortie and Castogiovanni (2015) who asserted that "subjective norms may affect entrepreneur intention only through personal attitude and perceived behavioral control, exercising an indirect, rather than direct, effect on individual intentionality". Also, Ceresia and Mendola (2020) found a non-significant effect of subjective norms but a significant effect of personal attitude on entrepreneurial intention.

The findings of the study showed that perceived behavioral control influence undergraduate science education students' entrepreneurial intentions to a moderate extent. Likewise, perceived behavioral control was shown to influence the entrepreneurial intentions of undergraduate

science education students. This might be because of the high entrepreneur mindset of people within the South-East Zone in Nigeria. This is supported by the findings of Mumtaz et al., (2012) who concluded that behavioral control (creativity and risk taking) had a positive relationship with entrepreneurial intention. Also, in alignment with the findings is Bagheri and Pihie (2014) who opined that students who have high perceived behavioral control are supposed to have high entrepreneurial intentions. However, Ceresia and Mendola (2020) found a weak effect of perceived behavioral control on entrepreneurial intentions which is against the finding of the study.

Conclusions

The researchers concluded that attitude, subjective norm and perceived behavioral control influences entrepreneurial intention of undergraduate science education students in South-East, Nigeria. Subjective norm influence students perceived behavioral control and increase attitude towards behavior which will lead to an increase in students' intention towards becoming an entrepreneur, especially in South-East, Nigeria which serves as the business hub of the country.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Teachers should encourage the students to develop positive attitude towards entrepreneurship because it is a major predictor of their entrepreneurial intentions.
2. Teachers should help to increase a better understanding of their learner's attitude and perception of social norms as well behavioral control, and provide suitable guidance.
3. Parents should encourage their children to associate themselves with reference groups that support entrepreneurship since social norms have a significant influence on entrepreneurial intention.
4. Government should establish entrepreneurship networks in universities and communities to support entrepreneurship activities set up.

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IMPROVING SOCIAL COMPETENCES THROUGH SPORT: AN EXPLORATION OF THE EDUCATIONAL ROLE OF PHYSICAL ACTIVITY IN ADOLESCENT DEVELOPMENT

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Abstract: *The current context of society underlines the need to develop robust social skills among adolescents, essential for social integration and professional success. This research examines the impact of physical activity and sports on the development of social skills, such as empathy, effective communication and teamwork, among adolescents. Through a mixed methodology, combining quantitative analysis of data collected from surveys applied to a sample of 500 adolescents and qualitative analysis of detailed interviews with selected participants, the study provides a comprehensive perspective on how involvement in sports activities contributes to improving social skills. The results indicate a significant positive correlation between regular participation in sports and higher levels of social skills mentioned. These findings suggest that sport, as an integral part of the educational curriculum, can play a vital role in promoting adolescent social development. The conclusions of the study recommend the systematic incorporation of physical education programs focused on the development of social competences, highlighting the importance of a holistic educational framework that values the physical, cognitive and social dimensions of youth development. This abstract effectively summarizes the purpose, methodology, main results, and conclusions of the research, giving the reader a clear and concise overview of the study. The next step would be to develop the introduction section, which will detail the context of the research and objectives in more detail. If you have any further details or adjustments to make to the abstract, or if you would like us to proceed with the introduction, please let me know.*

Key words: *Social skills; physical education; adolescent development; sports participation; empathy and collaboration.*

Introduction

In the context of contemporary society, the development of social skills is becoming increasingly essential for the integration and success of young people in various areas of life. Social skills, including empathy, effective communication, teamwork, conflict resolution, and leadership, are fundamental to successful social adaptation and the formation of positive interpersonal relationships. Within this framework, physical education and sport offer unique opportunities for learning and development, promoting not only physical health but also personal and social growth.

Recent research highlights the role of physical activity in improving emotional well-being and social skills in adolescents, suggesting that sport can serve as a valuable educational environment. However, there is a need for further exploration of how participation in sport specifically influences the development of these skills and the mechanisms by which these effects are achieved.

Therefore, the main objective of this study is to investigate the contribution of sports activities to the development of social competences among adolescents. In particular, research focuses on analyzing the impact of participation in sport on empathy, effective communication and the ability to work in teams, essential elements of social competences. The research questions guiding this study are as follows:

1. To what extent does participation in sport contribute to the development of empathy among adolescents?
2. How does engaging in sports influence effective communication skills and teamwork in adolescents?

This research aims to provide valuable insights for educators, coaches and policymakers, highlighting the importance of integrating sport into educational programmed as a means of promoting young people's social and personal development.

The structure of the article is organized as follows: the next section provides a theoretical substantiation, presenting a review of the relevant literature. This is followed by the description of the research methodology, the presentation of the study results and their discussion. The article concludes with research findings, practical involvements, and recommendations for future studies.

Theoretical foundation

The development of social skills is a crucial aspect of adolescents' growth and maturation, significantly influencing their social adaptation and success in life. Social competencies include a wide range of skills, such as empathy, effective communication, teamwork, conflict

resolution, and leadership, that enable individuals to interact effectively in diverse social contexts (Goleman, 1995; Parker & Asher, 1987).

Literature suggests that sport and physical activity play a significant role in the development of these social skills. By participating in sports, adolescents not only improve their physical health, but also have the opportunity to learn and practice social skills in a structured and supportive environment (Eime et al., 2013; Holt et al., 2008). For example, team sports activities require constant communication between players, thus promoting the development of communication and collaboration skills.

Empathy, an essential component of social skills, is also cultivated through sports, as players learn to understand and respect their opponents and teammates by recognizing and responding to their emotions (Jowett & Cockerill, 2003). In addition, conflict resolution and leadership are common in the sports context, providing adolescents with opportunities to develop and practice these skills in real-life situations.

Studies show that engaging in physical activity and sports can have positive effects on self-esteem, self-confidence, and mental health, all of which are contributing factors to the development of social skills (Eime et al., 2013). Sport also provides a unique framework for socializing and building interpersonal relationships, contributing to the adolescents' social support network (Vella, Oades & Crowe, 2011).

Despite the positive evidence, the literature also reveals the need for a balanced approach, recognizing that negative experiences in sports, such as excessive pressure for performance or experiences of failure, can have adverse effects on social and emotional development (Smith & Smoll, 1997). It is therefore crucial that sports programs are well designed and implemented in a way that promotes the positive development of young people.

Research

This interdisciplinary study took a mixed approach, combining quantitative and qualitative methodologies to investigate the impact of participation in sports activities on the development of adolescents' social competences. By integrating numerical data with participants' subjective perceptions, the research aims to provide a holistic perspective on the phenomenon studied.

The study involved a total sample of 500 adolescents, aged 13 to 18. Participants were recruited from a variety of educational backgrounds in ten schools, ensuring demographic and socio-economic diversity. Randomly stratified sampling was used to equally allocate participants to two groups: an experimental group (250 participants), which was involved in a structured sports program, and a control group (250

participants), which did not participate in organized sports activities during the study period.

For the assessment of social competences, the Social Competence Questionnaire (SCC) was used, which comprises 50 questions structured around five main dimensions: empathy, effective communication, teamwork, conflict resolution, and leadership. Each question was rated on a Likert scale from 1 (strongly agree) to 5 (strongly agree). In addition, to deepen understanding of participants' personal experiences and perceptions, 50 adolescents from the experimental group were randomly selected for semi-structured interviews at the end of the sports program.

The sports activities program for the experimental group was designed to promote not only physical improvement, but also social interaction and the development of social skills. It included a wide range of sports (football, basketball, volleyball, athletics) and was held twice a week over six months. At the end of the program, both the experimental group and the control group completed the CCS again to assess changes in social competences.

Quantitative analysis was performed using SPSS statistical software to compare averages of CCS scores between and within groups before and after the intervention via the t-test for independent samples. The t-test is a statistical procedure used to determine whether there is a significant difference between the means of two groups, which may indicate whether the observed differences in the data are the result of random variations or are statistically significant. Qualitative analysis was performed through thematic coding of interview responses, using NVivo, an advanced qualitative data analysis software designed to help researchers organize, analyze and find insights into unstructured or qualitative data, such as interview texts, answers to open questions, field notes, research articles, media content and other forms of complex data, to identify significant themes related to the impact of sport on the development of social competences.

All study procedures have been reviewed and approved by the Ethics Committee of the organizing institution. Participation in the study was completely voluntary, with informed consent obtained from all participants and, in the case of minors, from their parents or guardians. Data confidentiality and participant anonymity were maintained throughout the research process.

Table 1. Features of the study sample

Feature	Experimental group	Control group
Number of participants	250	250
Average age	15.5 nor	15.5 nor
Gen	60% masculine, 40% feminine	60% masculine, 40% feminine
Educational background	Divers	Divers

Table 2. Comparative summary of SCR scores between experimental and control groups

Social competence	Group	Average pre-intervention score	Average post-intervention score	Average difference	P-value
Empatie	Experiment	3.2	4.1	+0.9	<0.001
	Control	3.3	3.4	+0.1	n.s
Effective communication	Experiment	3.0	4.3	+1.3	<0.001
	Control	3.1	3.2	+0.1	n.s
Teamwork	Experiment	3.4	4.5	+1.1	<0.001
	Control	3.5	3.6	+0.1	n.s
Conflict resolution	Experiment	3.1	4.2	+1.1	<0.001
	Control	3.2	3.3	+0.1	n.s
Leadership	Experiment	2.9	4.0	+1.1	<0.001
	Control	3.0	3.1	+0.1	n.s

Conclusions

The results of the study highlight the significant impact of participation in sports activities on the development of social skills in adolescents. The statistically significant increases in average Social Competence Questionnaire (SCC) scores for the experimental group, compared to minor changes observed in the control group, highlight the potential of sport as a means of improving essential social skills, including empathy, effective communication, teamwork, conflict resolution, and leadership.

These findings suggest that integrating physical activity programs into school curricula and extracurricular programs may have significant benefits beyond physical health, contributing to the holistic development of young people. Sport provides an environment conducive to practicing and cultivating social competences in a natural and motivating setting, facilitating experiential learning and personal development.

In light of these results, we recommend that education and public policy makers consider promoting and supporting access to structured sport activities for young people as an essential component of education for social and personal development. It is crucial that sports programs are designed and implemented with particular attention to social competence development, involving coaches and educators trained to guide and support this process.

The current study provides an important basis for future research into the impact of sport on social and personal development. Future studies could explore in more detail the specific mechanisms by which participation in different types of sport contributes to the development of social competences and examine the long-term impact of these interventions.

It would also be valuable to expand the research to include groups with diverse socio-economic and cultural backgrounds, to better understand how context and access to resources influence the benefits of participating in sport.

By emphasizing the valuable educational role of sport in the development of adolescents' social competences, our study contributes to existing literature and provides practical insights for improving educational and extracurricular programs. Sport, as an integral part of education, has the potential to facilitate the development of young people not only as athletes, but also as competent and empathetic members of society.

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COMPARATIVE ANALYSIS OF SECONDARY SCHOOL STUDENTS' PERFORMANCE IN BIOLOGY AND CHEMISTRY IN ONDO AND EKITI STATES, BEFORE COVID-19

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Abstracts: *Education is a fundamental process that facilitates human learning, skill development, and knowledge transfer. It plays a pivotal role in fostering economic growth, improving quality of life, and shaping societies. This study focuses on the performance of secondary school students in Biology and Chemistry in the Nigerian states of Ondo and Ekiti from 2015 to 2018. The research examines the comparative performance of these subjects and explores factors that might contribute to variations. Using an ex-post facto research design, the study analyzed data from the West African Senior School Certificate Examination (WASSCE) to determine academic outcomes. The results indicate significant differences in performance between the two subjects and the two states. Students in Ondo state performed better in Biology, while those in Ekiti state excelled in Chemistry. Factors that caused the differences in their performances included access to learning tools, student attitudes, students' resource availability, students' interpersonal relationship, students' regularity to class, parental education, and the learning environment, were discussed. The study suggested that laboratory facilities be improved, teacher should be trained, and class sizes be optimized to enhance student achievement.*

Keywords: *Comparative analysis; secondary school Students; Performance; Biolog; Chemistry.*

Introduction

Education is the entire process of human learning, including the transfer of knowledge, the use of faculties, and the development of skills. One of the most crucial elements of growth in any area is education. Without significant investments in human capital, no nation can attain long-term economic greatness. People's perspectives and understanding of the world around them are widened by education. Since education enhances people's quality of life, it is advantageous to both individuals and society. It improves people's overall health while enhancing their productivity and creativity. The growth of a nation is sometimes seen as being gauged by its level of education (Olojo, 2021). The aforementioned has highlighted the crucial role that education plays in bringing about positive social change to encourage and support a country's and its residents' overall growth. A child's education aims to increase their creativity and objectivity, among other things. It promotes a child's total development, which includes intellectual, moral, social, emotional, and physical growth. Students serve as the center of all educational activities, and education is frequently seen as a nation's primary driver of progress and development (Olojo, Boris, & Popoola, 2021).

The major objective of education should be to maximize profit by offering high-quality instruction that produces educated, skilled, and well-mannered people who match the needs and requirements of a quickly changing labor market. Education should be seen as a profitable industry. Every educational innovation will be a colossal failure without great academic accomplishment (Achombo, 2010). Therefore, it should always be attempted to maintain a high school level.

The classic definition of science is a rigorous examination of how nature functions with the aim of understanding and directing it for human benefit. It is a technique for gathering knowledge, including facts, guidelines, and theories. According to Pember and Humbe (2009), science education is an approach to teaching or training, typically in schools, to improve one's knowledge of the environment and to help one become more environmentally aware; to develop one's skill of systematic inquiry as well as attitudinal one's characteristics, and to help one become more environmentally aware. Science education focuses on sharing scientific knowledge with people who aren't typically regarded as being part of the scientific community, such as students, farmers, market vendors, or an entire community (Aina, 2013).

In addition to being crucial to Nigeria's educational system, secondary schools also bridge primary and post-secondary education. Asikhai (2010) asserts that secondary education should serve as the cornerstone and basis for future education at post-secondary institutions. Biology and chemistry are two of the three divisions of science taught in secondary schools in Nigeria. These subjects are essential to Nigeria's growth as a country and the achievement of its great potential. There are several problems with how science is taught in secondary schools nowadays. Fashina and Akanji (2017), claim that Biology has the greatest enrollment in Nigeria and the lowest test scores. In senior secondary classrooms, several variables work against students' academic performance in science in general and Biology and Chemistry in particular. Because it is important as the science of life, biology has a special place in the high school curriculum. The secondary biology curriculum in Nigeria aims to foster students' ability to apply scientific knowledge to everyday life in a variety of contexts, including personal, community, health, and agricultural issues (Federal Ministry of Education, 2009). Additionally, it seeks to increase students' knowledge of and enthusiasm for biological sciences. Chemistry is the branch of science that examines the characteristics of distinct atoms, how they combine to form molecules, the interactions between various types of molecules, and the resulting energy changes. Chemistry is a branch of science that studies the composition, structure, and characteristics of matter as well as the structural, compositional, and energetic changes brought about by chemical processes. Any country's technical advancement is dependent on its study of science, particularly chemistry (Eremie & Ekpete, 2008). As a science, chemistry is designed to help students learn about the nature of chemicals (such as facts, concepts, and principles), procedures, and attitudes before giving them the skills necessary to become professional chemists.

Purpose of the Study

The study investigated a comparative analysis of secondary school students' academic performance in Biology and Chemistry in the Ondo and Ekiti states. The study specifically examined:

i. comparative analysis of secondary school students' academic performance in Biology and Chemistry in the Ondo and Ekiti states

ii. performance of students in Biology and Chemistry subjects in the selected secondary schools in Ondo state?

iii. performance of students in the Biology and Chemistry subjects in public secondary schools in Ekiti State?

Research Questions

The following research questions were raised to guide the study:

i. What is the comparative analysis of secondary school students' academic performance in Biology and Chemistry in the Ondo and Ekiti states?

i. Does the performance of students in Biology and Chemistry subjects in the selected secondary schools in public secondary schools in Ondo state difference?
ii. Does the performance of students in the Biology and Chemistry subjects in public secondary schools in Ekiti State difference?

Research Hypotheses

This null hypothesis was generated for this study:

Ho1: There is no significant difference in students' performance in Biology and Chemistry subjects in public secondary schools in Ondo state

Ho2: There is no significant difference in students' performance in Biology and Chemistry in public secondary schools in Ekiti State.

Literature Review

Theoretical framework

Attribution theory by Bernard Weiner (1974)

Attribution theory is concerned with how individuals interpret events and how this relates to their thinking and behavior. Weirner developed a theoretical framework that has become a major research paradigm of social psychology. Attribution theory assumes that people try to determine why people do what they do either attribute causes to behavior. A person seeking to understand why another person did something may attribute one or more causes to that behavior.

A three-stage process underlines an attribution

1. The person must perceive or observe the behavior.
2. Then the person must believe that the behavior was intentionally performed.
3. The person must believe the other person was forced to perform the behavior (in which case the cause is attributed to the situation) or not (in which case the cause is attributed to the other person). Weiner focused his attribution theory on achievement (Weiner, 1974). He identified ability, effort, task difficulty, and hick as the most important factors affecting attributions for achievement.

Attributions are classified along three causal dimensions:

i. Locus control
ii. Stability
iii. Controllability
iv. The locus of control dimension has two poles:

v. internal versus external locus of control.

Weiner holds the following belief regarding hearing and education.

1. There is a significant relationship between attitude and achievement.
2. That people's behavior is attributed to internal and external causes that influence people's behavior (Wikipedia 2011). Maintain that our view of the world, our previous experiences with a particular person or situation, and our knowledge of the behavior play an important role in our attempt to explain the world and to determine the cause.
3. The students with higher ratings of themselves and with higher school achievement tend to attribute success to internal, stable, uncontrollable factors such as ability, while they attribute failure to either internal, uncontrollable factors such as efforts or external uncontrollable factors such as task difficulty.
4. Weiner emphasized the fact that students' disposition or attitude (internal factors) can cause poor academic achievement in chemistry.

1.1. 1. Theory of Constructivism by Jean Piaget (1955)

The theory of constructivism which was propounded by Jean Piaget states that people construct their understanding and knowledge of different things through experiencing things and reflecting on those experience; constructivism learning theory by Jean Piaget generally explain that; when a person or learner encounters with something new, first they have to reconcile it with their previous ideas and experiences, maybe to change what they believed or maybe to the new information as irrelevant. In his words, people are the active creators of their knowledge. Piaget elaborates on nine (9) principles that guide constructivism learning theory, learning is an active process whereby learners use sensory input and construct meaning out of it, the crucial action of constructing meaning is metal (cognitive) hence, it happens in the mind and people learn to learn as they learn. Other principles include; learning is a social activity so learning is intimately associated with learners' interactions with human beings and the environment around them. Learning uses language hence the language used to influence learning is contextual people learn about what is known believed and observable.

The theory of constructivism by Jean Piaget has relevance to this study because the theory is particularly applicable to the teaching and learning of various things including science subjects (biology and chemistry). Achievement is an outcome of learning; hence ways of learning determine outcome, or achievement in a science subject (biology and chemistry) is an outcome of how the subjects were learned. The process of teaching and learning science subjects involves asking questions, experimenting, observing, exploring, and assessing

and all those activities are elaborated as the main principles of constructivism learning theory. Its basic assumption is that learning is the construction of ideas, knowledge, and understanding through experience, observation, and reflection and there are independent variables that are the influencing factors in the process of learning biology and chemistry and have relation to dependent variables which are an academic achievement in grades.

Conceptual framework of the study

Academic Success and Student Attitudes

Knowledge of human behavior requires knowledge of attitude. An attitude is typically characterized as a complicated mental state comprising beliefs. Khan, Ramzan, Qadeer, and Hussion Ali (2011). According to Olatude (2009), it is a habitual tendency for an individual to react favorably or unfavorably to things, persons, groups of people, institutions, or events. The term is described as a subjective or mental preparation for action within the context of social psychology. It describes the way people behave and what they believe. What each person sees, hears, thinks, and does is determined by their attitudes. Since they are based on experience, they do not develop into automatic routine behavior. Both positive and bad attitudes are possible, such as prejudice. Interest or sentiment in studying science is expressed by one's attitude toward it. Olatude (2009), when someone approaches an issue, evaluates a concept, or chooses the sciences, they are said to be taking a scientific attitude. In any educational system, teachers play a crucial role. However, just because a teacher is competent doesn't mean that they will always have a favorable attitude toward teaching. Simply put, teacher attitudes matter because they have an impact on the students. The classroom atmosphere, which is influenced by students' self-efficacy and, in turn, their conduct, is greatly influenced by the attitudes of the teachers. According to Wolfolk (2007), all of these variables—which can broadly be classified as environment, personal characteristics, and behavior—interact and feed off one another in a cyclical fashion. According to Papanastasion (2001), people who have a good attitude toward science typically outperform their peers in the field. Science attitudes are learned, and classroom emotional behaviors are closely related to academic success.

Students' Resource Availability and Academic Achievement

Science examines natural phenomena. These phenomena cannot be adequately studied by just theoretical or abstract debate. Currently, math and science instruction in all educational systems is designed to include practical work. Most science students (Kwale SMASSE 2005) find that real things, models, or live things give phenomena enough concreteness to be grasped. A classroom teacher needs a variety of

teaching aids, including textbooks, equipment, chemicals, charts, models, movies, and other materials, to improve the quality of his or her education, according to Maundu, Muthwii, and Samili (2005). Any source of knowledge, skill, supply, or assistance qualifies as a resource. Resources are crucial for improving the conditions for teaching and learning (Frany, 2007). When using resources for learning, a variety of human senses are occasionally involved. This helps to express the desired aim and facilitates learning. Bhagwan (2005) notes that an increasing body of research in cognitive science indicates that students learn and remember information better when they are involved in "authentic" learning assignments. According to Twoli (2006), the school chemistry curriculum is more laboratory-based in many nations, and learning time is largely spent engaging in practical or hands-on activities. The teacher will supervise the students as they manage physical items, specimens, tools, and chemicals throughout the practical sessions, the author continues. Among many other advantages, this enhanced engagement between students and teachers has produced positive results. The degree to which students use learning resources, especially those that support the practical application of chemical principles in classes, greatly influences their overall performance in chemistry. In 2007, Frany. Only through the actual use of or contact with the materials will the learner be able to adequately acquire these concepts and skills. This is crucial in the sciences, where it has been shown that a hands-on approach to learning is essential for developing conceptual knowledge, the memory of the material given, and the capacity to think scientifically. According to Okafor (2009), 5% of the post-primary schools in Lagos State, Nigeria had a laboratory, and those that did had both people and material resources available. These elements, which are not peculiar to Lagos State alone, are probably going to have an impact on how well students perform in chemistry.

Students' Inter-Personal Relationship and Academic Achievement

Positive student-teacher relationships are a beneficial resource for students, according to Humre & Pianta (2006). They indicated that having a good relationship with a teacher enables students to work on themselves because they know they can rely on their teachers to identify and address problems when they arise. They concluded that developing strong and supportive relationships with teachers allows students to feel safer and more secure in the school environment, feel more competent, make more positive connections with peers, and achieve greater academic gains. They also advised that talking with a teacher and conducting classroom observations will provide important and unique information for designing interventions.

Field, crouch, Downer, Howes, Laparo, and Little (2012). Humre, and

Pianto Burchinal (2006). suggested that for learning to take place, teachers must be actively involved in interactions with students. In Downey (2008), conducted study synthesizing research in education on the elements that affect academic success. It was shown that teachers' one-on-one interactions with their students had a big impact. According to Downey's et al (2006) view, teachers should focus on their students' skills and set high, realistic expectations for achievement while also developing strong interpersonal relationships with them. Strong teacher-student relationships, which are essential to a student's academic achievement, should be founded on mutual respect, trust, and caring. Cohesion and a sense of belonging are also byproducts of these relationships.

Downey says in his conclusion that the study was a potent reminder of the importance of regular teacher-student interactions in the classroom. Children's intellectual development at home and school is closely tied to the social interactions in which it develops, according to Cazden (2001). Cazden thinks that building a learning environment where all the stakeholders are invested would have a beneficial impact on the learning that will take place. Embedded familiarity improves responsiveness, which plays a vital role in learning.

According to Marzano (2003), helpful question for anyone trying to understand elements that improve students' progress. He claims that decisions made at the school level have much less of an influence than those made by a single teacher. Showing interest in students as persons has a favorable effect on their learning, according to Marzano, who claims that "the core of effective teachers-student relationships is a healthy balance between dominance and cooperation" (Marzano, 2003).

Students' Regularity to Class and Academic Achievement

Since students who attend school regularly are more likely to thrive academically, regular attendance is vital (Pascopella, 2007). According to Stanca (2006), attending lectures has advantages for college students. Academic achievement, according to Scorts (2012), is defined as how well a student completes his or her assignments and studies. Grades are unquestionably the most well-known indicator of academic achievement. Grades are what students "score" for their classes, and overall term grades are typically a tallying or average of assignment and test scores. They can also be significantly influenced by other factors like attendance and the instructor's perception of the student.

Arulampalam, Naylor, and Smith (2012) revealed that while missing class appears to have an impact on students of lesser ability, it only appears to hurt more able students' progress. Park and Kerr (2000) used "A multinomial logit approach" to research the factors influencing academic accomplishment, and they found that class attendance had a

statistically significant impact on students' grades in those classes. Their research in particular showed that a student's poor attendance was statistically important in explaining why they obtained a D instead of an A, B, or C.

The statistical test used found that regular attendance in class was a major factor in reducing a student's likelihood of obtaining a D or F. Romer (2003) found, in his research, that students with better attendance had significantly higher mean GPAs than those with worse attendance. In a meta-analysis of the correlation between class attendance, grades, and student characteristics, Crede, Roch, and Kleszynka (2010) found that the highest performing students had either very good or very poor attendance and that these students in the lowest quintile grades were most likely to have average (rather than poor) attendance. Additionally, they note a decline after the gap between kids with average attendance and students with extremely good attendance was greater than the gap between the two.

According to a study by Jaykaran, Yadaau, Chavda, Kantharia, and Yadaau (2011) conducted in a school where it is suggested that attendance be made mandatory at a minimum of 70% rate as a criterion for students was divided into two groups; students who had at least 75% class attendance, it was found that there was a statistically significant difference between the two groups for mean marks. In the group where attendance was at least 75%, mean grades were higher.

Material and Method

The procedure of the data collection in this methodology is describe under the below sub heading: Methods, Background, Participants, Procedure, Results and Analysis. In this study, the ex-post facto research design was used. All students who took the West African Examination Council (WAEC) in the states of Ekiti and Ondo between 2015 and 2018 made up the study's population. Students who took the WAEC at secondary schools in Ekiti and Ondo State were chosen as the study's sample using a purposive sampling technique. An inventory of the outcomes from the Senior Secondary School Certificate Examination served as the study's tool. The inventory was used to gather student data for the West African Senior School Certificate Examination in May/June of 2014/2015, 2015/2016, 2016/2017, and 2017/2018 sessions in the scientific subjects of Biology and Chemistry. Letter of introduction was collected from the department of Science Education. This letter was given to the appropriate authorities in each of the selected sample secondary schools in which the results of the WAEC results was collected from. The external inspecting body had previously standardized the data gathered through the inventory; thus validity and reliability were not required. Analysis of Variance

(ANOVA) was used to test the stated hypothesis, with a significance level of 0.05, and frequency counts, percentages mean, and standard deviation was used in the analysis of the data gathered. The analysis employed frequency count and percentage to address the demographic data of the respondents, the research questions were analyzed with the use of mean and standard deviation and ANOVA analytical tool was used to test the hypotheses formulated at alpha level of 0.05 significance.

Results: Research Question One: What is the performance of students in Biology and Chemistry subjects in the selected secondary schools?

Table 1 revealed the performance of students in the three biology and chemistry in public secondary schools in Ondo State. The result showed that out of 1009 respondents in the 2014/2015 session, 681 representing 67.49% had between A1-C6 in Biology, and 547 representing 54.21% had A1-C6 in Chemistry. The result showed that out of 1261 respondents in the 2015/2016 session, 699 representing 55.43% had between A1-C6 in Biology while 586 representing 46.47% had A1-C6 in Chemistry.

The result showed that out of 1209 respondents in the 2016/2017 session, 813 representing 67.72% had between A1-C6 in Biology, and 702 representing 58.06% had A1-C6 in Chemistry. The result showed that out of 1283 respondents in the 2017/2018 session, 794 representing 61.89% had between A1-C6 in Biology, and 651 representing 50.74% had A1-C6 in Chemistry.

Table 1: *Performance of students in Biology and Chemistry*

Year	No. Reg.	BIOLOGY A1-C6 (%)	BIOLOGY D7-F9 (%)	CHEMISTRY A1-C6 (%)	CHEMISTRY D7-F9 (%)
2014/15	1009	681 (67.49)	382 (37.86)	547 (54.21)	462 (45.79)
2015/16	1261	699 (55.43)	562(44.57)	586 (46.47)	675 (53.53)
2016/17	1209	813 (67.72)	396 (32.28)	702 (58.06)	507 (41.94)
2017/18	1283	794 (61.89)	489 (38.11)	651 (50.74)	632 (49.26)

Results: Research Question Two: What is the mean average performance of students in the Biology and Chemistry subjects in public secondary schools in Ekiti State?

Table 2 revealed the performance of students in the two science subjects in public secondary schools in Ekiti State. The result showed that in the 2014/2015 session, out of 6691 students that sat for Biology,

3974 representing 59.4% had between A1-C6, and out of 6072 who sat for Chemistry respectively, 4580 representing 75.4% has between A1-C6 in Chemistry respectively.
The result further showed that in the 2015/2016 session, out of 2022 students that sat for Biology, 4730 representing 78.5% had between A1-C6, out of 5189 who sat for Chemistry respectively, and 4403 representing 84.9% has between A1-C6 in Chemistry.
Moreover, it was revealed that in the 2016/2017 session, out of 5641 students that sat for Biology, 4453 representing 78.9% had between A1-C6, and out of 5258 who sat for Chemistry, 4894 representing 93.1% has between A1-C6 in Chemistry.
Furthermore, it was shown that in the 2017/2018 session, out of 5578 students that sat for Biology, 4637 representing 83.1% had between A1-C6, and out of 5155 who sat for Chemistry, 4322 representing 76.9% has between A1-C6 in Chemistry.

Table 2:
Performance of students in Biology and Chemistry subjects

Year	Subject	No. Reg	A1 – C6 (%)	D7 – F9 (%)
2014/15	Biology	6691	3974 (59.4)	2717 (40.6)
	Chemistry	6072	4580 (75.4)	1492 (24.6)
2015/16	Biology	6022	4730 (78.5)	1292 (21.5)
	Chemistry	5189	4403 (84.9)	786 (15.1)
2016/17	Biology	5641	4453 (78.9)	1188 (21.1)
	Chemistry	5258	4894 (93.1)	364 (6.9)
2017/18	Biology	5578	4637 (83.1)	941 (16.9)
	Chemistry	5155	3964 (76.9)	1191 (23.1)

Testing of Hypotheses
Ho1: There is no significant difference in students' performance in Biology and Chemistry subjects in public secondary schools in Ondo state
The result in Table 3 presented in Table 5 showed that the F-cal value of 3.486 is significant because the P value (0.033) < 0.05 at 0.05. Hence, the null hypothesis is rejected. This implies that there is a significant difference in students' performance in the Biology and Chemistry subjects in public secondary schools in Ondo state. To investigate the source of the differences observed, Post – hoc analysis (Scheffe) with a mean difference was carried out.

Table 3:
Analysis of Variance (ANOVA) for the difference in students' performance in the two science subjects

Groups	SS	df	MSF	Sig.

Between Groups	.811	1	.405	3.486*.033
Within Groups	20.585	177	.116	
Total	21.396	179		

*P < 0.05

In Table 4, a significant difference was found between the performance of students in Biology and Chemistry in favor of students' performance in Biology. The result of the post – hoc test also showed that students performed best in Biology, followed by Physics while they performed least in Chemistry.

Table 4:
Post – hoc Analysis and Mean for Difference in Students' Performance in Biology and Chemistry Subjects

Groups	Mean	Biology	Chemistry
		2.6957	2.5333
Biology	2.6957		
Chemistry	2.5333	0.1623*	

* P < 0.05

Ho2: There is no significant difference in students' performance in Biology and Chemistry in public secondary schools in Ekiti State.

Result 5 presented in Table 5 showed that the F-cal value of 3.174 is significant because the P value (0.032) < 0.05. Hence, the null hypothesis is not upheld. This implies that there is a significant difference in students' performance in Biology and Chemistry in public secondary schools in Ekiti State. To investigate the source of the differences observed, post-hoc analysis (Scheffe) with a mean difference was carried out.

Table 5:
Analysis of Variance (ANOVA) computation for the difference in students' performance in the three science subjects

Groups	SS	df	MS	F	Sig.
Between Groups Within Groups	.711	1	87.062		
	585.709	2	295.2403.174*		.032
Total	586.42	3	56.800		

In Table 6, a significant difference was found between the performance of students in Biology and Chemistry to the advantage of students in Chemistry. The result of Post-hoc test showed that students performed better in Chemistry than in Biology.

Table 6:
Post-hoc Analysis of Mean for differences in students' performance in the three science subjects

Groups	Mean	Biology	Chemistry
		3.2741	4.2133
Biology	3.2741	0.1537*	
Chemistry	4.2133		

*p<0.05

Summary of Major Findings

The following are the summary of major findings in this study;

1. The results indicated significant differences in performance between the two subjects and the two states.

2. There was significant difference in students' performance in the Biology and Chemistry subjects in public secondary schools in Ondo state. (Students in Ondo state performed better in Biology)

3. There was significant difference in students' performance in Biology and Chemistry in public secondary schools in Ekiti State. (Students in Ekiti state excelled in Chemistry.)

Acknowledgments

We really appreciate the Head of Department of Science Education, University of Ilorin, Ilorin, Kwara State, Nigeria, who issued us letter of introduction to the respective schools in which the research was conducted. Also thanks the Authorities of the appropriate selected schools for this study.

Declaration of interest statement

The study was from Lecturers from university of Ilorin, Ilorin, Kwara State, Nigeria

Hereby, we as the authors consciously assure that for the manuscript " " the following is fulfilled:

This material is the authors' own original work, which has not been previously published elsewhere.

The paper reflects the authors' own research and analysis in a truthful and complete manner.

The results are appropriately placed in the context of prior and existing research.

All sources used are properly disclosed.

Discussion

The results of the study showed that there was a significant difference in students' performance in the biology and chemistry subjects in public secondary schools in Ondo state and Ekiti state, with a

significant difference found between students' performance in biology in Ondo state and students' performance in chemistry in Ekiti state. According to the results of the post-hoc test, students in Ondo State performed better in Biology than Chemistry, while in Ekiti State, students performed better in Chemistry than Biology. This may be related to the following factors that are responsible for students' performance that the provision of ICT / internet facilities is necessary for the accomplishment of all educational goals and objectives. This is in agreement with finding of Oludare et al., (2022) who observed Comparative analysis of secondary school student's performance in science subjects in Ekiti state, Nigeria and the result indicated better in performed in Chemistry than Biology.

The finding shows that Students in Ondo state performed better in Biology than the students in Ekiti State. This may be as a result that there were more opportunities for the student to participate actively in class and form meaningful relationships with both their peers and teachers. This is in the agreement with the finding of Mugure (2020) who observed the Impact of Resource Utilization in Education as Perceived by Teachers in Secondary Schools in Mathioya District, Muranga County and the finding shows better performance of the students.

The study shows that *Students in Ekiti state excelled in Chemistry in their performance. This may be as a result that* Students in smaller courses may have more opportunities to participate actively in class and form meaningful relationships with both their peers and teachers, in addition to having a more favorable learning environment. Demuyakor & Abakah (2018) Effects of information and communication technology on students' academic performance: A case study of the University of Education, Winneba. The result indicated that class size can also have an impact on academic attainment.

Conclusion

According to the results of this study, students at public secondary schools in the states of Ondo and Ekiti performed differently in the areas of biology and chemistry. Ondo students performed better in biology, while Ekiti students performed better in chemistry. Factors that caused the differences in their performances included access to learning tools, student attitudes, students' resource availability, students' inter-personal relationship, students' regularity to class, parental education, and learning environment, were discussed.

Recommendation

The following recommendations were given based on the study's findings, the government should make every effort to supply and outfit

schools' laboratories with enough tools and other facilities that contribute to a better lab. To improve teachers' effectiveness, the government could also assist and motivate them by periodically hosting workshops and training sessions on science-related topics. Parents and other education stakeholders should help governments by paying their fair share in schools. Enough time should be outlined in the schedule for both teaching and practicing science courses.

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PARENTS' PERCEPTIONS ABOUT IMPROVING STUDENT'S BEHAVIOR THROUGH PARTICIPATION IN NON-FORMAL ACTIVITIES. A QUALITATIVE ANALYSIS.

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Abstract: *Social competence is the ability to effectively manage social interactions and refers to the behavior of getting along well with others, being able to form and maintain close relationships, and responding adaptively to the social environment. Given the complexity of social interactions, social competence is the product of a wide range of cognitive skills, affective processes, behavioral skills, social awareness, and personal and cultural values related to interpersonal relationships. In the present research, we want to highlight the relational side of social skills, and in this sense, we developed a program of non-formal activities, wanting to highlight whether the behavior of the participant's registers changes from the parents' perspective. Thus, we developed a questionnaire for parents, made up of 14 items, structured into two categories: items aimed at the child's activity (activities carried out by the student outside of class hours, his schedule, areas of interest, group of friends), and the second part items designed to collect data about the parent's perception of non-formal activities, his consent to allow the child to participate in non-formal activities in the formal space, and the willingness to get involved in the*

design, organization and conduct of these activities). The subjects of the present experiment are primary school students, two classes of students, a total of 53 students forming the experimental sample and two classes forming the control sample, forming 49 students. As a result of the students' participation in the program of non-formal activities organized and carried out in the formal space, we observe an improvement in the behavior of the children who are part of the experimental sample, behavior perceived by their parents.

Keynote: *student's; social skills; parent's perception; non-formal activities.*

Theoretical perspectives

The key features of the concept of competence can be described as follows: it is not directly manifest, it is inseparable from the activity of the subject, it can be structured, it has a constructive and evolutionary component, a metacognitive and individual and collective dimension. abilities.

A person's social skill is determined by the quality of his social skills. Therefore, the quality of social skills is important in all areas of human activity, and therefore social skills can be considered one of the main measures of social competence. Social skills extend to all areas of social functioning, including not only interpersonal skills, communication skills, and cooperative skills, but also self-management skills or problem-solving skills. Social competence is related to personal characteristics (Vaughn & Hogan, 1990). It manifests itself through social knowledge, effective communication and the ability to build positive relationships with others.

Social skills that play a role in non-verbal and verbal communication are expressed through: body language - eye contact, gestures, imitation; voice quality - tone and pitch, speed, clarity and interaction skills: conversation - greetings, entering names, starting a conversation; express goodwill, kindness, friendship - when others are hurt or sad, offer help, invite, ask to join, express tenderness, complement each other, sympathize; self-confidence - protect their rights, ask for information, express their needs, rejection, confronting anger, aggression and more (Lappy, 2000).

The methods and styles in which students communicate with others are primarily learned responses. They are learned through imitation, modeling and reinforcement, primarily in childhood. Students receive feedback from parents, peers and more. This can be both positive and negative. Social skills behaviors are learned behaviors.

Students develop social "skills" as they learn when to use certain recognized social behaviors. Hargie (2021) identified four key stages in the process of learning social skills: observation (students pay attention to the behaviors of other peers), simulation (students are able to perform skills or behaviors similar to those observed), and self. - control failure begins mastery of the skill) and self-regulation (the student learns to use the skill appropriately in different contexts and with different people).

Several cognitive skills are important for improving social skills:

(1) Problem solving - identifying problems and proposed objectives, finding solutions, anticipating the possible consequences of actions, accepting the consequences of one's actions, selecting solutions and evaluating the solutions for the initiative to see if it helps achieve the desired objectives;

(2) Understanding the relationship between beliefs, emotions, and behavior—recognizes the impact of beliefs on emotions and emotions on behavior, and identifies and changes beliefs that lead to undesirable outcomes;

(3) Ability to implement a variety of conflict management strategies, such as making excuses, avoiding or ignoring situations, and problem solving.

The main social skills, present in varying degrees in individuals, are: assertiveness, gratification and support, non-verbal communication, verbal communication, empathy, cooperation and attention to others, knowledge and problem solving, respectively self-presentation. These components are identified based on the analogy between social skills and motor skills (Argyle & Furnham, 1983).

The seven social components essential to successful interpersonal relationships are (Argyle, 1998):

Assertiveness: refusing requests, making requests and favors, expressing positive or negative feelings, respectively initiating, continuing and ending a conversation.

Assertiveness is the basis of effective communication, being the one that allows the expression of feelings about events, without having to evaluate the other party as an opponent (Helena & Soshana, 1996). The act of behavior performed in an assertive manner demonstrates self-esteem and respect for others, promoting self-control and positive self-esteem. The assertive way is the most effective way to solve interpersonal problems, because it is based on direct, open and honest communication, so that messages are not distorted when they are received (Constantinescu, 2004).

Reward and support are important elements, especially in long-term relationships. Gratitude is a "feeling of attachment, duty of goodwill, towards a person who helped you and did you a lot of good" (Popescu-

Neveanu, 1978, p. 302). Support includes supporting others in a situation or relationship (Argyle, 1998) and can take many forms: verbal support, including appreciation, praise, recognition, acceptance, consent, encouragement, sympathy.

Gratification and support are special social skills, which are necessary in the education of children (Constantinscu, 2004), in the optimization of family relationships, couples and relationships established at the workplace (Caluschi, 2001).

Nonverbal communication has implications on the development of other skills (Constantinescu, 2004). In interaction, the partner pays more attention to non-verbal behavior, through which he can observe certain aspects of the other's perception, his intentions and his personality. In social interaction, the body is a basic dimension because it is the mediator of self-knowledge and the acquisition of other knowledge (Argyle & Kendon, 1967). Social gestures and signs, related to the social skills model, are mainly non-verbal. Assertiveness and gratification require a specific non-verbal communication time in voice, face and attitude. Common factors of non-verbal communication are: facial expressions, especially smiles, strong expressions, intense gaze, strident, clear, or explosive voice, gestures directed more towards others than towards oneself (Argyle, 1998).

Verbal communication is the core of performance and social skill because it is the main way of transmitting information. It involves sending a message that includes structural elements, topical elements, audience interest and motivation, clarity, feedback, internal consistency, etc. (Constantinescu, 2004). These skills must be developed, perfected continuously, from childhood to adulthood (Caluschi, 2001).

Empathy, cooperation and consideration for others. Empathy is the act of restoring one's own state, thought and behavior, through a process of substitutional transposition (Marcus, 1997). Empathetic people are generous, tend to help those around them, have clear pro-social behaviors, good social adaptability, and are usually a little anxious. (Constantinescu, 2004) Collaboration is closely related to empathy. Collaboration involves considering the goals of others as well as our own goals and adopting behaviors that encourage us to achieve the goals we have set for ourselves (Argyle, 1998).

Cooperation means interaction between team members, which creates a sense of acceptance and compassion. Builds good understanding and drives behavior to promote the success of others. It also helps to increase self-esteem, self-confidence and can have the effect of reducing anxiety. Many shortcomings related to personal social skills are due to lack of cooperation (Constantinescu, 2004).

Self-presentation is another component of social competence. It involves three postures: self-image, self-esteem, and self-presentation (Argyle, 1998). The formation and evolution of self-image is a continuous process, which is based on the identity of a person, the emergence and crystallization of unity and continuity. Self-image is a comprehensive expression between self-perception and the perception of others (Constantinescu, 2004).

Self-presentation, or self-presentation, is the behavioral component of self-concept. People are interested in the images they convey to others about themselves. In social interaction, the essence of self-expression is to create a fair impression on our peers.

Knowing and solving problems is a component of the impetuous social competence necessary for social and professional adjustment. Solving problems and situations that transfer real-life events is a method that can be used to understand how social realities between individuals are established and developed (Caluschi, 2001; Dughi, 2011).

Social relations are extended into reciprocity-dependent relations, those relations in which the participants increasingly rely on each other. These actions emphasize similarity in attitudes, needs, and values, based on social interactions involving an exchange of information or goods, not just on the possibility of two individuals interacting (Kelley & Thibaut, 1978).

The family environment is important because it affects the relationships between children in schools in several ways. One of them is the degree to which shy and withdrawn children participate in social activities. Several studies have shown that welcoming greetings from peers and teachers influence the extent to which shy and withdrawn children continue to withdraw or increase their social engagement.

In social psychology we note a distinction between two forms of social relations (Clark & Mills, 1979): common relations, which describe affiliations with friends, colleagues and family members, and exchange relations, which include all the others. In a joint relationship, the student's behavior is oriented towards the well-being of the partner.

In an exchange relationship, the learner's behavior is guided by the reciprocity of the benefits received or anticipated. Participants have no obligation to each other other than to ensure the partner's well-being, which results from their social interactions. Thus, social exchange means social interaction.

The term reciprocity is not used in describing social relations, although it represents a social interaction that involves giving and returning or repaying what one of the interlocutors has received.

Research methodology

The assessment of the child's social behavior from the parent's perspective is a tool designed by us. In the pre-experimental stage, it was applied to parents of children who are part of both the control and experimental samples.

The questionnaire addressed to parents, self-designed, includes 14 items, and is structured into two categories: in the first part, the items refer to the child's activity (activities carried out by the student outside of class hours, his schedule, areas of interest, group of friends), and the second part, the items are designed in such a way as to collect data on the parent's perception of some relational behaviors of the children.

Regarding the interpretation of the results, the experimental sample, we conclude:

The item referring to the identification of a new, observable thing in the child's behavior in the last month, from the parent's perspective, their answers were concluded as follows:

Loses patience with younger siblings;
They don't complete their homework;
He gets bored quickly with any activity;
Prefers to be alone;
It is the same, nothing has changed;
Gets agitated if someone walks him around with his favorite toy;
Does not keep his room clean;
Spend more and more time in front of the computer;
It's just as hectic;
He prefers to give in, just so as not to upset his friends;
Sometimes he rages hysterically;
He avoids telling if someone has hurt his feelings.

The answers of the parents who are part of the control sample, we conclude the following:

He quarrels with his older brothers;
He does not like to get involved in the affairs of the house;
He is more concerned with music than school;
He gets bored quickly;
She doesn't really want to play with children her age;
He began to lie;
It's just as messy;

The assessment of the child's behavior in the last 2 weeks is shown in the graph below:

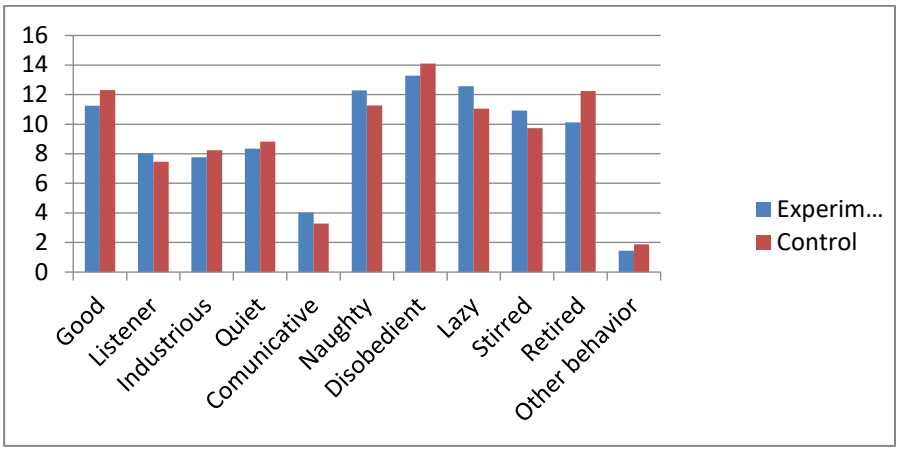

Figure No. 1. Assessment of children's behavior by parents

From the comparative analysis of the assessment of the child's behavior from the parent's perspective, behavior observed by them in the last two weeks, we conclude that there are no significant differences between the parents of the experimental sample and the parents of the control sample. We note that the negative behavioral characteristics (naughty, lazy, disobedient, agitated, withdrawn) present high values in both samples.

Regarding the item "He/she easily accepts decisions about him/her that are not in accordance with his/her will", we observe a difference in the perception of the parents of the control and the experimental sample. Thus, 28% of the parents of the students in the experimental sample believe that occasionally, their children easily accept decisions about themselves, decisions that are not in accordance with their will, compared to the parents of the control sample, who 19% have the same opinion about their own child.

Another item where we notice a major difference between the parents' answers is the one regarding "He asks for forgiveness easily". In this situation, 51% of the parents of the students of the experimental sample believe that this statement is very rarely appropriate for their own child, while 36% of the parents of the control sample believe that the statement is very rarely appropriate for their children.

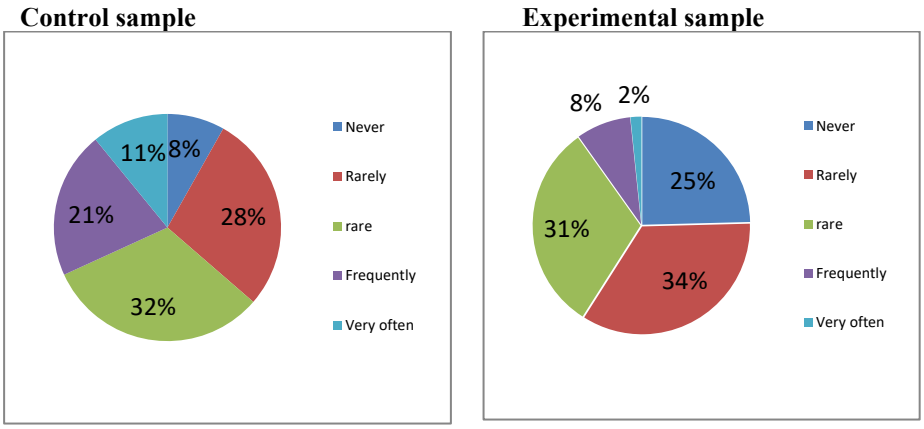

Figure No. 2. Comparative analysis of the assessment of the child's behavior from the parent's perspective

This item does not show significant differences in the answers of the parents; however, we emphasize the fact that of the total number of parents of the students that make up the experimental sample, 4% consider that they appreciate that their child never does exactly what they are told to do, 35, 4% believe that it rarely happens that their child does exactly what they are told, and 6.5% find that their child does exactly what they are told to do.

Regarding the request of parental advice from the child, in certain school matters, the answers of the parents of the experimental and the control sample, the answers are similar. Thus we can conclude that the students of the content sample are less communicative with their parents about what is happening in the school institution.

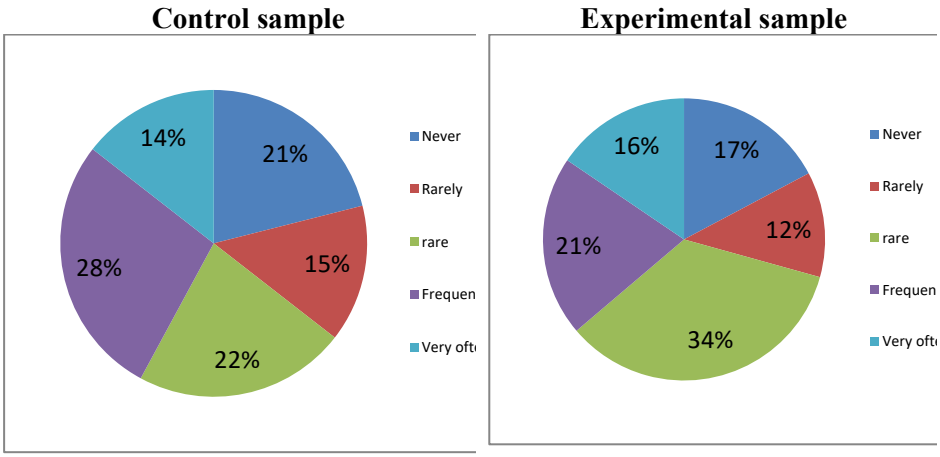

Figure No. 3. Comparative analysis of parental advice from the child, in certain school matters

Regarding the item He shares his toys with other children, the parents of the experimental sample consider the statement appropriate for their children occasionally, in proportion of 29% compared to the parents of the control sample, who consider the statement appropriate for their children occasionally in proportion of 39%. Another discrepancy regarding the same item is observed in the answer option never, thus 6% of the parents of the children of the experimental sample appreciate that their child never shares toys with the other children, while 16% of the parents of the students who are part of the control sample appreciate that their child never shares toys with other children.

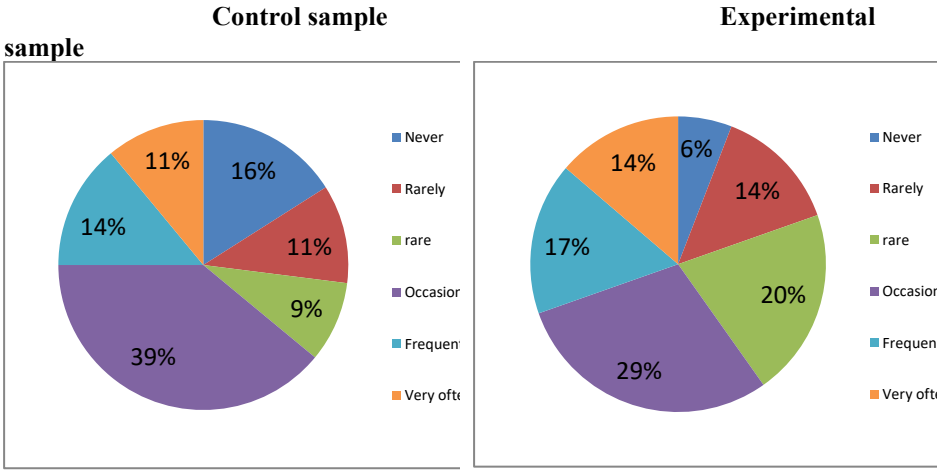

Figure No. 4. Comparative analysis about shares his toys with other children

Another comparatively analyzed item is the one related to "He says nice things about his classmates". We notice the most significant difference in the variant to be answered very rarely. Thus, 32% of the parents of the students who are part of the experimental sample claim that their child very rarely says nice, likeable things about their classmates, in relation to the assessment of the parents of the students of the control sample, who in the proportion of 26% appreciate that very rarely does their child say nice things about classmates.

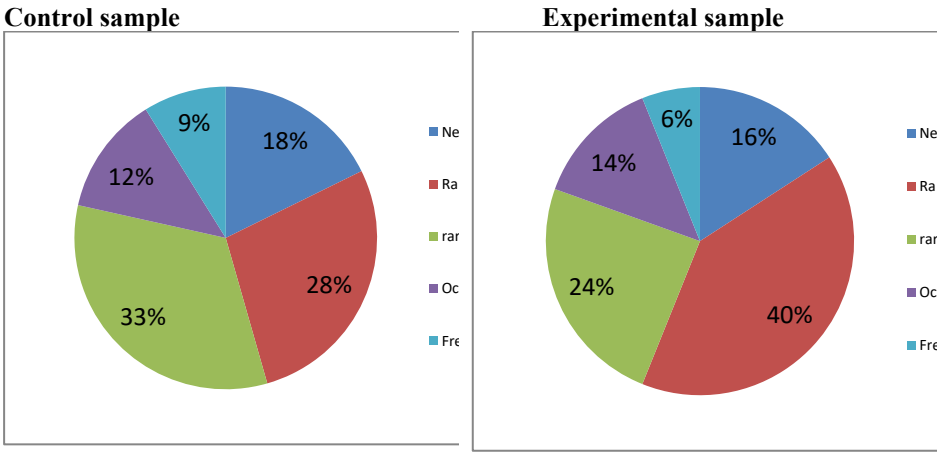

Figure No. 5. Comparative analysis about saying nice things about his classmates

Reported to the last item of the questionnaire, which wants to identify the level of satisfaction of the parent regarding the child's behavior in the last month, no significant differences are noted between the two samples.

The non-formal activities program was designed to stimulate a collaborative environment between students-parents-teachers by facilitating, designing, organizing and carrying out non-formal activities in the formal space, with the aim of acquiring and developing the social skills of the participating students. By participating in the non-formal activities program, students are encouraged by teachers to identify and adopt positive behavioral models, but at the same time build collegial relationships based on mutual respect.

Each activity designed within the non-formal program aims at specific aspects of managing one's own behaviors, of communication and inter-relationship, ways of acquiring a prosocial behavior.

The 13 activities proposed within the program are derived from the specific skills identified, and can be capitalized by monitoring some examples of behavior in order to develop the students' social competence.

By identifying and encouraging behaviors that stimulate the development of social competence, students will be held responsible for developing self-regulated behavior that coincides with the social norms accepted by the student group community.

Regarding the interpretation of the results we conclude:

The item referring to the identification of a new, observable thing in the child's behavior in the last month, from the parent's perspective, their answers were concluded. Below is a summary of their answers.

The answers of the parents who are part of the experimental sample, we conclude the following:
Pay more attention to school projects;
He is receptive to those already around him;
He has more patience;
Sometimes he gets bored, but he seeks your concern;
He talks a lot about his colleagues;
I didn't notice it changed;
It is very easy to animate;
It's messy;
He is more attentive to maintaining friendships;
Sometimes it rages;
He is delighted that I participate with him in school activities;
It doesn't tell much about what happens at school;
The answers of the parents who are part of the control sample, we conclude the following:
He is bored;
He doesn't like doing his homework;
He is more concerned with play than with school;
He has few friends;
She doesn't really want to play with children her age;
It's just as messy;
The assessment of the child's behavior in the last 2 weeks is shown in the graph below:

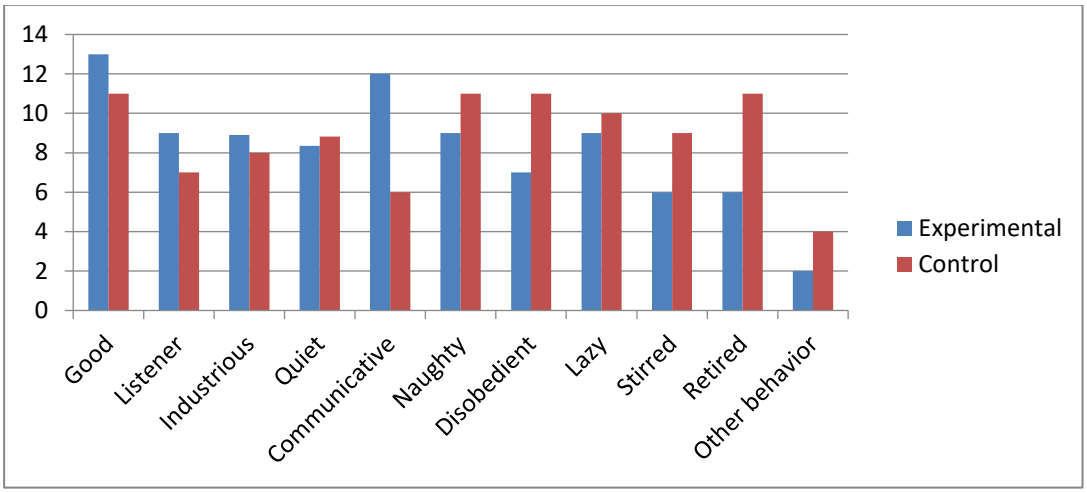

Figure No. 5 Assessment of children's behavior by parents

From the comparative analysis of the appreciation of the child's behavior from the parent's perspective, behavior observed by them in the last two weeks, we conclude that there are significant differences between the answers of the parents of the experimental sample and the

parents of the control sample. The most significant difference is perceived in the case of the item that refers to how communicative the child is. Thus, a radical improvement is observed in the case of the experimental sample.

In order to highlight the differences and/or similarities between the responses of the parents of the control and experimental samples, we reproduce the graphic form below:

As a result of the students' participation in the program of non-formal activities organized and carried out in the formal space, we observe an improvement in the behavior of the children who are part of the experimental sample, behavior perceived by their parents.

Regarding the items Before starting a contradictory discussion, he thinks about the consequences that may arise after it, we observe a significant improvement in the case of the experimental group, so that 52% of the respondent parents believe that their child rarely thinks about the consequences that he can had following a contradictory discussion, 19% often, 14% very rarely, 10% very often and 5% never think about such consequences.

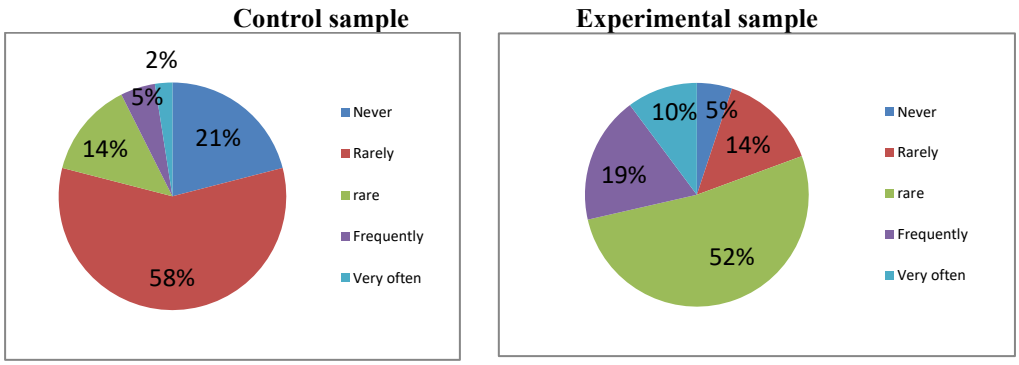

Figure No. 5. Comparative analysis about student's starting a contradictory discussion, he thinks about the consequences

Another significant difference is noted next to the item Asks for forgiveness easily, where 37% of the respondent parents appreciate that their children ask for forgiveness easily, 29% rarely, 9% very often, compared to the parents of the students in the control group, where 21% believe that their child asks for forgiveness often, 25% rarely, and also 9% very rarely.

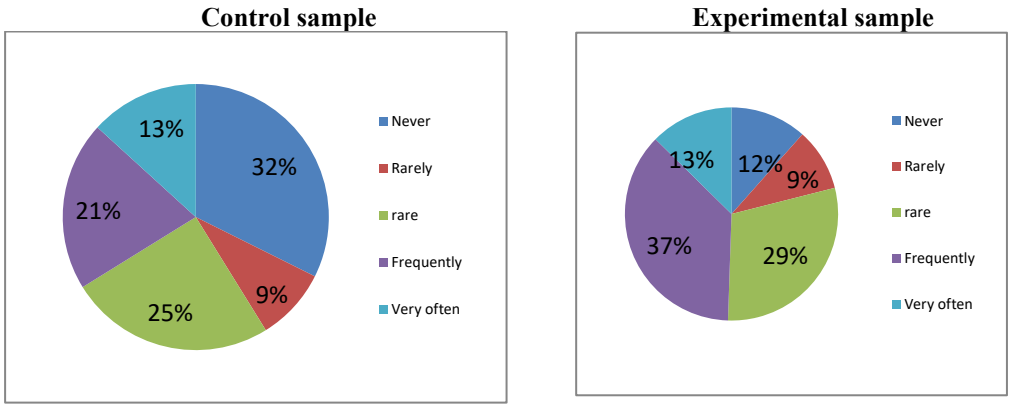

Figure No. 6. Comparative analysis about student's forgiveness behavior

The differences are also significant in the case of the items *In school matters he asks his parents for advice, He expresses his opinions without imposing them, He says nice things about his classmates*, a fact that can confirm the importance and effectiveness of the non-formal activities program.

We also see improvements in the behavior of students in relation to their parents, the item in school matters asks for parents' advice. Thus, both the students in the experimental group turn to their parents 36% more often, compared to 13% of the students in the control group.

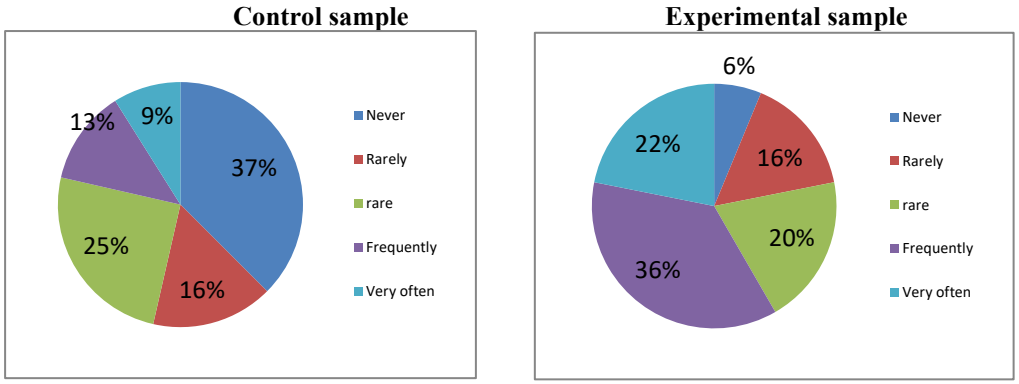

Figure No. 7. Comparative analysis about students asks his parents for advice

Following the students' participation in the program of non-formal activities proposed by us, we appreciate that the parents of the students in the experimental sample, in proportion to 22%, are more satisfied with their child's behavior compared to the parents of the students in the control sample, whose opinion remained unchanged from the pre-

experimental stage, only 12% of the respondent parent's estimate that they are satisfied with their children's behavior.

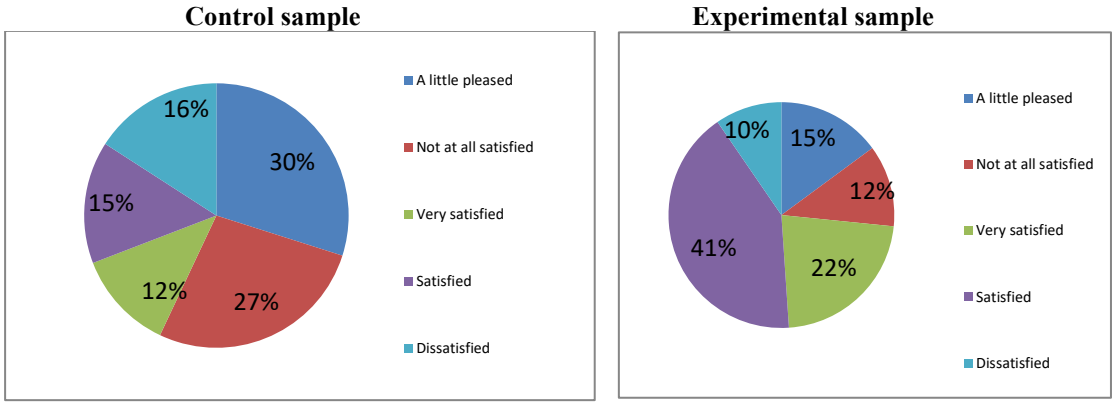

Figure No. 8. Comparative analysis about parent's appreciation about students' participation in the program of non-formal activities

As a result of the students' participation in the program of non-formal activities organized and carried out in the formal space, we observe an improvement in the behavior of the children who are part of the experimental sample, behavior perceived by their parents.

According to the items Before starting a contradictory discussion, one thinks about the consequences that may arise after it, we observe a significant improvement in the case of the experimental group, such that 52% of the respondent parents believe that their child rarely thinks about the consequences that can have them following a contradictory discussion, 19% often, 14% very rarely, 10% very often and 5% never think of such consequences.

Another significant difference is noted next to the item Asks for forgiveness easily, where 37% of the respondent parents appreciate that their children ask for forgiveness easily, 29% rarely, 9% very often, compared to the parents of the students in the control group, where 21% believe that their child asks for forgiveness often, 25% rarely, and also 9% very rarely.

Conclusions:

Children's participation in non-formal activities is often viewed by parents as a valuable opportunity for personal and behavioral development for them. From a parent's perspective, the behavioral benefits of engaging in such activities are multiple and significant.

One of the main aspects observed is the improvement of autonomy and responsibility. Children who participate in extracurricular activities learn to manage their time between school, hobbies and leisure, thereby developing their ability to make independent decisions and take

responsibility for them. This increased autonomy is often accompanied by behavioral maturation, with children becoming more aware of the consequences of their actions.

In addition, non-formal activities provide a conducive environment for the development of social skills. Interactions with peers and adults in diverse contexts teach children how to communicate effectively, collaborate, and resolve conflict constructively. These social skills are essential for forming healthy interpersonal relationships and for success in personal and professional life. The personality of the students is shaped and manifests itself in interdependence with the life of the group of which he is part, with the norms and values that he develops. (Roman, 2020)

Parents also notice an improvement in their children's confidence and self-esteem. Success and recognition in activities such as sports, art, or volunteering help strengthen a sense of personal worth and develop a positive self-image. This can have a profound impact on the child's attitude towards life's challenges, encouraging him to approach new situations with courage and optimism.

Therefore, from the perspective of parents, non-formal activities play an essential role in children's behavioral development, providing them with the necessary tools to successfully navigate life's challenges. These activities contribute not only to the formation of practical skills, but also to the shaping of a strong character and a balanced personality. (Dughi & Cotrău, 2014)

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INFLUENCE OF SMART CLASSROOM ENVIRONMENT ON STUDENTS' INTEREST AND ACTIVE ENGAGEMENT

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Abstract: *This study investigated the influence of smart classroom on secondary school students' motivation and active engagement in learning. Two hypotheses were raised in the descriptive research design study. The sample comprised of students of the purposively selected international private schools in Lagos State. Data was collected through administration of questionnaire that was validated with reliability coefficient values of 0.85. Data were analyzed using inferential statistics of chi-square. The study found significant influence of smart classroom environment on students' motivation towards learning (X2 = 87.69, df =3, p<0.05). The study also found significant influence of smart classroom environment on students' active engagement towards learning (X2 = 97.68, df =3, p<0.05). Based on the findings, it is recommended that since majority of the learners agreed that it provides motivation, school administrators should encourage their teachers for its uses in all subjects. As a result of the active engagement it provides for students, instructional designers should integrate it in the curriculum planning and development.*

Keywords: smart classroom; motivation; active engagement; curriculum; instructional design.

1. Introduction

Education stakeholders are worried about traditional methods of teaching-learning in the schools and efforts are being made similarly to introduce innovative learning strategies, especially those that could be supported with technology. Technology as a phenomenon has been

ever growing in the field of education as a tool for teaching, management and evaluating purposes. A Smart classroom environment is one of the easiest modes of resources that can be used to convert old-fashioned traditional educational systems into modern ones with the help of emerging technologies. Some teachers are making moves to shifting away from the conventional lecture method and have embraced highly technology supported (smart) classroom.
A classroom is an environment for the transition of knowledge from a teacher to a group of students. The use of emerging technologies in classroom to aid knowledge sharing is referred to as smart classroom (Barak & Sharp, 2021). A smart classroom is one that foster opportunities for teaching and learning by integrating interactive multimedia learning technologies such as computers, interactive white board, specialized learning software, interactive response system, assistive listening devices, internet facilities, document camera(docucam), clickers, smart podium, smart audio and audio-visuals. The environment of a smart classroom is centered on technology where the teacher and the students interact through interactive whiteboard and typically equipped with computer technologies, digital photographic camera, digital video camera, consoles, scanners, printers, microphone, multimedia projectors etc. A smart classroom environment will provide hands-on experience, motivation, collaboration, creativity, critical thinking, individualized learning, immediate feedback, interactive content, online assessment, automated roll call and active students' engagement thereby providing the expected learning outcomes. Smart classrooms will undoubtedly enhance lecture theatres and classrooms digitally, thereby creating a highly motivating and students' active engagement environment.

Gardner (2018) in a study compared schools with and without smart classrooms with a view to determine students' achievement. The study found improved learning in this strategy compared to traditional teaching and students in schools with smart classrooms are highly motivated towards achievement. Scholes (2020) studied the high school students' attitude towards smart board used in Biology classes, majority were found with positive attitude towards smart board, students did not differ statistically with respect to the variables of gender and smart board use time. Young (2018) opined that students in smart classes are likely to gain better than their counterpart in the traditional classroom in view of the multimedia package imbedded in the digital presentation package.

However, some studies show that interactive whiteboards may not necessarily increase students' performance, especially when not properly managed by facilitators. For example, some advanced ideas

that learners can lose concentration while others can be watching irrelevant contents; reasons the teacher must pay attention to see whether learners are doing what they are intentionally supposed to do. Studies also revealed that inadequate teacher's knowledge and skills in the application of information technology (IT) as a medium of teaching is one of the problems hindering students' academic performance (John & Wilson, 2019)

Studies indicate that students are likely to be motivated in a smart classroom than the traditional classes as learning could be influenced through intrinsic factors. Motivation is the reason a person does something or the driving force behind man's action. Motivation is a psychological construct that initiates, guides and maintains positive action in man. It helps learners to focus attention on learning outcomes and avoid distraction. Motivation is the internal willingness for wanting to learn (Malak & Malls, 2018). The intrinsic drive that is generated can spark an enhancement in students' academic performance. Students' motivation is a psychological state of having an effective response to and focusing attention on particular contents. Motivation has been found to have a powerful influence on student's learning, with greater interest leading to greater persistence and academic achievement. Smart classroom is a means of generating intrinsic motivation as a path to academic success, especially among students in junior classes.

In a study, Clement et al., (2018) examined the relationship between the use of smart classroom and Australian students learning interest, the results show significant relationship. McPherson (2020) investigated the impact of smart classroom on the attitude of selected students in Denmark schools, the study found significant influence of smart classroom environment on students' attitude towards learning. On the other hand, Armstrong (2021) in a study on the attitude of students towards smart classroom found no significant influence on students' attitude.

Another variable of interest in this study is how students may be engaged effectively through smart classroom environment. Students' engagement has been defined as extrinsic curiosity to participate and be successful in the learning process (Ibrahim & Kharashi, 2021). Content delivery in smart classroom requires pedagogical strategies that will create as many learning and engagement opportunities as possible. Looking beyond cognitive skills learned or mastered, engagement focuses on individuals' activeness in classroom experiences and life-long learning. Student engagement has also been described as the level of participation demonstrated by students and how they interact with others in the course. By evaluating the level of students' engagement, instructors can more effectively plan lessons

and activities that will encourage students to be more active participants in their learning and coursework.

Hug and Lash (2022) in a descriptive study on smart classroom engagement found that majority of respondents (85%) agreed that smart classroom encourages collaborative skills. In another survey, Farook (2021) reported that majority of the teachers who responded to the questionnaire agreed that smart classroom promotes hands-on experience among the students. On the other hand, Lussvill (2021) found no significant influence of online smart classroom on students' development of psychomotor skills.

Studies have shown that information technology significantly facilitates students' active engagement thereby improving higher order thinking in the classroom (Dottman & Lamphon, 2023). Perhaps with persistence efforts on the learning task and active participation there is desire to undertake more tasks. Information technology will significantly engage the students while working on the internet through virtual excursion, virtual reality, artificial intelligence, augmented reality, collaborative activities, mindtools, games and simulation. Also, students are actively engaged with digital technologies by creating web page, by communicating through electronic bulletin boards, chatting, videoconferencing and the smart boards.

Smart classroom is an intelligent class that incorporates innovative learning methods with emerging digital technologies (Thomson & Joy, 2019). Various investigations have been carried out to addressing various aspects of intelligent classes such as transforming traditional classroom into intelligent classroom. However, there are still some questions about smart classrooms that need to be empirically analyzed, such as students' motivation and engagement. It is against this background that this study investigates the impact of smart classroom on secondary school students' motivation and engagement.

The theoretical framework for this study is constructivism theory by Jean Piaget (1896-1980), which holds that learning is built upon that knowledge which is already known by students. Constructivist learning theory beliefs that all knowledge is constructed on the basis of previous mental knowledge, understandings and experiences. According to Piaget (1964), in order to truly know an object, you must act on it. The accreditation of constructivist teaching is that learning is more effective when a student is actively engaged in the learning process rather than attempting to receive knowledge passively (Jonassen, 1991). A shift from teacher centered education to learner centered education in which learners guide his own learning is needed to enable students acquire 21st century knowledge and skills; in which information communication technology (ICT) is inclusive. It has been observed that ICT is influencing learning through facilitation of active

students' engagement. ICT decreases memorization and rote learning while increases learning with longer retention, activeness and increased performance. For constructivist learning, it is essential that ICT will provide more opportunities for students' participation in learning process, increased motivation, creativity, critical thinking, reinforcement, team work, self-regulated study, self-evaluation as well as peer evaluation, and less examination-oriented teaching-learning (Gray, 2016). Information technology will undoubtedly promote constructivism among learners through higher order thinking, interactivity, cooperation and learning-by-doing; through digital demonstration, gamification, simulation, tutorial, drilling, augmented and virtual reality. ICT will also facilitate students' cognitive engagement through persistence and joyful desire to engage in tasks. A smart classroom environment with smartboard and other digital devices will engage the students to work on internet through virtual excursion, will engage students through hand-on experience, will engage the students through collaboration with other students and promote student - centered instructional approach.

Statement of the Problem

A smart class is an innovative strategy for technology- embedded digital education in a classroom environment. Studies have shown that a technology-driven learning environment enhanced students' attitude and performance in many disciplines, especially in developed climes. Smart classroom is an emerging educational technology in Nigeria schools and how it will be embraced depends on the motivation and engagement it provides for the students. Therefore, there is need to investigate if smart classroom provides the envisaged intrinsic motivation and extrinsic engagement for Nigerian students.

Hypotheses

H01: There is no significant influence of smart classroom on student's motivation to learning.

H02: There is no significant influence of smart classroom on students' active engagement in classroom activities.

2. Methodology

The study adopts a survey research design. The population consists of all the students in the forty (40) international schools in Lagos State, Nigeria. One thousand (1000) students were sampled in the study. Multistage sampling technique was used. In the first stage, purposive sampling technique was used to select the forty international schools in Lagos state because they are sufficiently equipped with Smart classroom facilities e.g, computers, digital educational hardware,

software, multimedia projector and smartboard etc. The second stage, proportional sampling technique was used to select 50% i.e (20) out of the fourty international secondary schools. In the third stage, simple random sampling technique was used to select fifty students in each of the selected schools making a total of one thousand students.

The instrument used in this study was a questionnaire adapted from Watinge & Mathawgiong (2020) on secondary school students' attitude towards the use of Smart Classroom. The instrument is divided into sections A and B. Section A seeks demographic data of the respondents while section B is sub-divided into B (i) and B (ii). Section B (i) is a thirty item that measures students' motivation through smart classroom, while section B (ii) is a thirty item that measures students' active engagement through smart classroom. It's a four-point likert rating scale with strongly agreed, agreed, disagreed and strongly disagreed. It was subjected to construct and content validity through experts in Educational Technology while internal consistency was ensured through Cronbach Alpha method which yielded 0.85 reliability coefficient value.

The instrument was administered by two research assistants who were closely monitored by the researchers in order to ensure all the questionnaires were duly completed by the students in the selected schools. The cooperation of the students was sought through the class teachers for smooth administration of the questionnaires. Data collected was statistically analyzed through inferential method of Chi-Square (χ^2) .

3. Results

H01: There is no significant influence of smart classroom on student's motivation to learning

Table I: Chi-square result of the influence of smart classroom on student's motivation to learning

Opinions	Observed Frequency	Expected Frequency	$X^{2\text{-Cal}}$	$X^{2\text{-Tab}}$	Df	emark
Agreed	620 (62%)	100.0%	87.69	3.84	3	Sig.
Disagreed	380 (38%)	100.0%				

Values in parentheses ($X^2 = 87.69$, df = 3, $P < 0.05$).

The results reveal that 62% of the respondents agreed that smart classroom has significant influence on students' motivation to learning as against 5% of respondents who disagreed. The chi-square calculated value of 87.69 was greater than the chi-square table value of 3.84 at

0.05 level of significance and at 3 degrees of freedom. The null hypothesis is therefore rejected, which implies that smart classroom has significant influence on students' motivation to learning.

H02: There is no significant influence of smart classroom on students' active engagement in classroom activities.

Table 2: Chi-square result of the influence of smart classroom on students' active engagement in classroom activities

Opinions	Observed Frequency	Expected Frequency	$X^{2\text{-Cal}}$	$X^{2\text{-Tab}}$	Df	emark
Agreed	765 (76.5%)	100.0 %	97.68	3.84	3	Sig.
Disagreed	235 (23.5%)	100.0 %				

Values in parentheses ($X^2 = 97.68$, df = 3, $P < 0.05$).

The results in Table 2 reveals that 76.5% of the respondents agreed that smart classroom has significant influence on student's active engagement in classroom activities as against 4% of respondents who disagreed. The chi-square calculated value of 97.68 was greater than the chi-square table value of 3.84 at 0.05 level of significance and at 3 degree of freedom. The null hypothesis is therefore rejected, which implies that smart classroom has significant influence on students' active engagement in classroom activities.

4. Discussion

In hypothesis one, the result shows significant influence of smart classroom on students' motivation towards learning. The finding is in line with Clement et al., (2018) who found significant relationship between the use of smart classroom and students' interest and McPherson (2020) who found significant influence of smart classroom on students' attitude towards learning.

In hypothesis two, the result shows significant influence of smart classroom on students' active engagement. The results support Farook (2021); Hug and Lash (2022) who found that majority of the teacher respondents agreed that smart classroom promotes hands-on-experience and encourages classroom collaboration.

5. Conclusion

The study investigates if smart classroom provides the envisaged intrinsic motivation and active engagement to students generally. However, the analysis of results established that smart classroom has significant influence on students' motivation to learning and student's

active engagement in classroom activities. Therefore, it is concluded that the digitally driven innovative classroom environment is a welcome pedagogy due to its learner - centeredness features.

6. Recommendations

Since majority of the learners agreed that it provides motivation, school administrators should encourage their teachers for its use in all subjects. As a result of the active engagement the technology provides for the students, instructional designers should integrate it in the curriculum. The use of smart classroom should be introduced in all public schools in Nigeria as it were in the private schools. There should be adequate funding of schools in terms of supply of emerging technological facilities for setting up smart classroom. Both Pre-service and In-service teachers should be trained for adoption of smart classroom in their practice. Robust internet infrastructure is crucial for implementing smart classroom facilities.

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"ROOTS AND WINGS - CULTURAL AWARENESS AND PERSONAL DEVELOPMENT PROGRAM FOR CHILDREN"

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Abstract: *In the current context, cultural education plays an essential role in the integral development of children, especially in rural communities where access to cultural resources may be limited. This article examines the "Roots and Wings" program, an innovative project designed to enrich the cultural education of rural children through direct and experiential activities. Through storytelling and folklore workshops, cultural preservation projects, local art and history sessions, children's festivals and partnerships with schools, the program aims to strengthen children's ties with the cultural heritage of their community. The study uses mixed methods, including participatory observations and questionnaires, to assess the impact of the program on children's knowledge, appreciation and application of cultural values in everyday life. Preliminary results suggest a significant improvement in understanding and appreciation of local culture, as well as an increase in confidence in one's own creative and social skills. The article argues that such programs can serve as valuable models for integrating culture into the educational curriculum, having the potential to transform children's perspective on cultural heritage and positively influence their behavior.*

Key words: *Cultural education; local heritage; personal development; rural communities; experiential methods; curricular integration.*

Introduction

Access to cultural education remains a fundamental pillar in the development of young people, serving as a binder between them and the collective heritage of society. In rural areas, this access is often hampered by geographical isolation and lack of resources, which can lead to a rift between youth and the cultural richness of their region. As technology continues to reshape the educational landscape, children in these communities face the risk of being left behind, not only technologically, but also culturally.

"Roots and Wings" program aims to address these challenges through an innovative approach that brings local cultural heritage back to the forefront. Replacing screens with real and tangible experiences, the program takes children on a journey of discovery of the traditions and values that have shaped their communities over time. Hands-on activities, from craft workshops to local celebrations, are designed not only to educate but also to inspire and encourage active participation in the preservation and perpetuation of cultural heritage.

This article explores in detail the "Roots and Wings" approach, investigating how direct interaction with cultural elements can positively influence the development of children in rural areas. Our analysis aims to show how such cultural experiences enrich formal curriculum and contribute to children's personal and social development. We will examine how these interactions help young people form a sense of identity, develop critical thinking skills and value their heritage in ways that are creative and relevant to contemporary challenges.

Therefore, this article not only highlights the success of the programmed in rural communities, but also aims to serve as a replicable and scalable model for other regions facing similar challenges. Addressing this topic, we hope to open a constructive dialogue between educators, politicians and community leaders, leading to effective strategies for integrating cultural heritage into children's daily lives, regardless of their geographical location.

Theoretical foundation

Cultural education in rural areas is not just an extension of the curriculum, but a necessity for the balanced development of children (Smith, 2018). Children who are exposed to cultural values and traditions have a greater tendency to develop a deep understanding of identity and belonging (O'Donnell, 2020). This is vital in rural communities, where cultural resources may be less accessible compared to urban areas (Green, 2019).

Studies show that engaging in cultural activities can improve children's cognitive and social skills while encouraging critical thinking and creativity (Baker & Jones, 2017). Moreover, direct cultural experiences have been linked to an increase in self-esteem and self-confidence in children, giving them a sense of accomplishment and contribution to their community (Fisher & Robinson, 2021).

The importance of integrating cultural education in rural areas is supported by studies highlighting the link between knowledge of cultural heritage and personal development (Lopez & Wilson, 2019). The "Roots and Wings" program embraces this perspective, aiming to

create a framework in which children explore and value the local culture in an active and practical way.

To better understand this impact, it is essential to refer to Bronfenbrenner's theory of ecological systems, which emphasizes the importance of the environment in child development (Bronfenbrenner, 1979). This theory suggests that every level of a child's ecological system, from the immediate family to the wider culture and society, contributes to his education and development. In this context, "Roots and Wings" operates in several levels of this system, offering rural children a tangible connection with their culture that may otherwise be neglected.

Moving forward, it is important to recognize the role that family and community play in preserving and transmitting cultural values. According to Harris (2022), the family serves as a child's first point of contact with cultural heritage and, as such, is a crucial agent in shaping early cultural perceptions. In the rural context, where schools may have limited resources, the role of the family becomes even more pronounced.

On the other hand, the extended community, through celebrations and cultural events, reinforces these values and strengthens them through repetition and participation (Martinez, 2019). This is consistent with Bandura's theory of social learning, which states that observing and modeling the behaviors, attitudes, and emotional reactions of others plays a fundamental role in social learning (Bandura, 1977).

However, in today's globalized world, it is essential to ensure that children are exposed not only to local culture but also to a variety of cultural perspectives. Schwartz and Bardi (2001) point out that exposure to a wide range of cultural values can improve children's adaptability and tolerance. The "Roots and Wings" program incorporates this idea by integrating activities that present children with a panorama of cultural diversity.

Finally, it is essential to recognize that cultural education is not static, but must evolve with changes in society. Dewey (1938) argued that education should be relevant to students' experiences and reflect their changing interests and needs. Therefore, "Roots and Wings" aspires to be a dynamic program, adapting and responding to current cultural and social transformations.

Research

This research aims to analyze the impact of the "Roots and Wings" program on cultural awareness and appreciation among young schoolchildren in rural areas. Focusing on personal and social development, the study assesses how cultural heritage-based activities influence children's cultural identity, creativity and collaborative skills.

The study was designed as blended research, using both quantitative and qualitative methods to gain a deep understanding of the effects of the program.

- Quantitative research involved pre-testing and post-testing through standardized questionnaires to measure changes in cultural appreciation and self-efficacy. The independent sample t-test was used to compare pre-test and post-test scores, assessing the significant impact of the programme on the selected indicators.
- Qualitative research: Semi-structured interviews with participants, parents, and educators, as well as participatory observations during the conduct of program activities. Data from interviews and observations were analyzed through thematic coding, identifying major themes related to children's cultural experience and integrating values into their daily behavior.

The study included a sample of 100 children, ages 7 to 12, from five different rural communities. Participants were selected using a stratified sampling method to ensure representativeness of socio-cultural diversity in rural areas.

Table 1. Changes in cultural perception and self-efficacy

Indicators	**Pre-test (Media ± SD)**	**Post-test (Media ± SD)**	**Average difference**	**P-value**
Cultural appreciation	3.2 ± 0.8	4.5 ± 0.6	+1.3	<0.001
Creativity	2.9 ± 0.9	4.3 ± 0.7	+1.4	<0.001
Collaboration	3.0 ± 0.7	4.4 ± 0.5	+1.4	<0.001

Note: SD = standard deviation; P-value < 0.05 indicates statistical significance

Analysis of data collected under the "Roots and Wings" program revealed a significant improvement in the cultural appreciation, creativity and collaboration skills of the participating children, as illustrated in Table 1.

Cultural appreciation

Participants showed a notable increase in appreciation and understanding of local cultural heritage after participating in the program. This was reflected not only in the answers to questionnaires,

but also in the interactions and discussions during the workshops, where children shared deep perceptions and questions about the culture and traditions discussed.

Creativity

Comparative analysis of children's responses and creative work done before and after the program showed a significant increase in creative expression. Children became more inclined to experiment with new shapes and materials in craft workshops and to use their imagination in designing their own works.

Collaboration skills

Participatory observations and feedback from educators indicated an improvement in collaboration skills among children. Group activities were punctuated by more active participation and fairer distribution of tasks, reflecting an increase in self-confidence and respect.

Parents and educators reported positive observations of changes in children's behavior and attitudes toward the local culture. Many pointed to a new appreciation for community traditions and an increased interest in participating in cultural events.

These results suggest that the "Roots and Wings" program has had a positive impact on the personal and cultural development of rural children. The increase in cultural appreciation, creative expression and collaboration indicates a successful integration of cultural values into the daily life of participants.

Conclusions

The study presented in this article investigated the impact of the "Roots and Wings" program on the cultural and personal development of children in rural areas. Through activities that promote cultural heritage and creativity, the program has demonstrated a significant capacity to enrich the education and life experience of these children.

The results obtained underline the importance of integrating cultural education into the school curriculum, especially in rural areas. Increasing cultural appreciation, enhancing creativity and strengthening collaboration skills highlights how valuable experiential activities can be for children's development. Therefore, it is essential for politicians and educators to recognize and support such programs as "Roots and Wings", which can serve as models of good practice for cultural education.

The Roots and Wings program also contributes to strengthening the bond between children and their community, giving them a better understanding and appreciation of cultural origins and values. This can have a profound impact on social cohesion and preservation of cultural

heritage in rural communities, encouraging active and sustained participation in cultural activities.

There is significant potential for future research in the long-term evaluation of the effects of cultural education programs. Further studies could explore specific ways in which these programs influence children's educational and career trajectories, as well as how they can be adapted and implemented in diverse cultural and geographical contexts.

The "Roots and Wings" program is an important step towards a more comprehensive and integrated approach to cultural education in rural areas. The results of our study confirm the inestimable value of cultural heritage as an educational resource and as a means of improving community life. By promoting such initiatives, we can ensure that all children have access to an education that celebrates and develops their cultural identity, creativity and ability to collaborate.

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SOCIAL AND EMOTIONAL DEVELOPMENT IN UNIVERSITY: EDUCATIONAL TRAINING ACTIVITY FOR SOCIAL WORK PROGRAM STUDENTS

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Abstract: *In line with the Bar-On model, emotional-social intelligence is a cross-cutting section of interdependent emotional and social competencies, stressors, and facilitators that determine how effectively we understand and express ourselves, understand and relate to others, and cope with daily demands. The competencies, skills, and emotional and social facilitators mentioned in this conceptualization include the five key components described above, with each component encompassing a number of closely related competencies, skills, and facilitators detailed in the annex. Consistent with this model, being emotionally and socially intelligent means understanding and expressing oneself effectively, understanding and relating well to others, and easily coping with daily demands, challenges, and pressures (Bar-On 2006). Given the specialized literature detailing important aspects of socio-emotional development, I have developed a training program dedicated to final-year students in the social work specialization. The aim of this program is to develop socio-emotional skills and raise awareness of these skills for their professional application in a competent manner. I have extracted six elements from the Bar-On model (empathy, social responsibility, interpersonal relationships, stress management, problem-solving, and optimism) that are relevant to the practice of the social work profession.*

Keywords: *social intelligence; emotional intelligence; social work students*; *university; training activity.*

I. Conceptual Definitions and Theories Regarding Socio-Emotional Development in the Academic Field

Social Intelligence

Social intelligence can be described as an ability to understand other people, manage relationships with others, and act appropriately in various social situations (Seal, et al., 2010). Intelligence has been

divided into several categories, over time, each author making his own contribution. For example, Thorndike (1920) divided intelligence into 3 categories:

- abstract intelligence, which refers to the ability to understand people around and categorize ideas
- spatial intelligence, which refers to the ability to understand and manipulate objects
- social intelligence refers to the ability to manage relationships with others and to act appropriately and wisely in various social contexts.

Another categorization is that of Gardner (1983) who proposes a model of intelligence disposed on the basis of 7 distinct categories, among which we list linguistic understanding, which can be both verbal, as well as written, logical-mathematical intelligence, musical intelligence, kinesthetic, visual and spatial intelligence, interpersonal and intrapersonal intelligence.

Gardner (1983) also contributed to the definition of interpersonal and intrapersonal intelligence, characterizing the interpersonal intelligence as an ability to understand intentions, the motivations and desires of the people we interact with, so to that ability to work effectively with others, and, on the other hand, to, intrapersonal intelligence as an ability to understand oneself, their own emotions, and to have the ability to understand oneself (desires, fears, fears, different emotions) and use these things for the purpose of regulating your own life.

Then Sternberg (1985) develops the concept of intelligence and brings forward the name of successful intelligence, which refers to the knowledge of strengths and weaknesses, and use the strengths so as to overcome the weak ones.

The same author developed the successful intelligence concept on 3 branches:

- analytical – analysis, judgment, comparison and contrast;
- creative – to deal with the novelty;
- basically – to achieve the goal.

Emotional Intelligence

The second term, emotional intelligence (abbreviated IE) can be described as the ability to use information of an emotional nature to facilitate thinking (Bar-On 1988; Goleman 1995; Salovey & Mayer 1960). EI can also be described as a blending of emotion and intelligence, or, in other words, the intelligent use of emotions.

Nevertheless, according to Seal and Andrews-Brown (2010), the literature on Emotional Intelligence (EI) has been shaped by three primary streams of research. These streams have played a pivotal role

in both the evolution and widespread acceptance of the EI concept, forming the basis for many existing models and measurement tools: emotional traits, emotional abilities and emotional competence (Bar-On, 1988; Goleman, 1995; Salovey & Mayer, 1960)

Reuven Bar-On (1988) brought up the term "Emotional Quotient" or EQ in his seminal work, "Developing a Concept of Psychological Well-being. According to Bar-On (2006), the Emotional Quotient model focuses on emotional-social traits contributing to effective psychological functioning, utilizing five scales of EI: Intrapersonal, Interpersonal, Stress Management, Adaptability, and General Mood.

Boyatzis, Goleman and Rhee (2000) came to complement the pattern of emotional intelligence training and defined it as visible when a person uses those skills such as self-awareness, self-management of emotions, social awareness and social skills properly and at the right time. Four types of skills emerge from this model, according to the authors:

- self-consciousness;
- self-management;
- social awareness;
- managing relationships.

Competence Development

The discovery of competence development resulted from the study of emotional and social intelligence to be useful in psychological well-being, especially in the position of manager (Boyatzis, 1982; Spencer & Spencer, 1993). Unlike the broader focus on overall psychological well-being or emotional cognitive processing, competence research hones in on specific capabilities that are linked to performance outcomes. These capabilities are identified, validated, and articulated as competencies through effectiveness assessments. The competence approach seeks to understand the intricate integration of social and emotional processes by connecting underlying physiological traits or capacities with observable actions or capabilities (Boyatzis & Sala, 2004; Gavrila-Ardelean, & Gavrila-Ardelean, 2017). Competence can be defined as a capacity or ability leading to a successful outcome, comprising a set of related behaviors organized around an underlying purpose or goal, known as intention. Competencies are the result of appropriate behaviors stemming from intention, efficiently used in a situation to achieve a fundamental goal. For example, the act of listening and asking questions involves multiple behaviors that can be driven by various intentional purposes. Successful use of these behaviors, such as empathetic listening, reflects an underlying intention to understand the other person, whereas alternative intentions may involve seeking influence or impact (Gavrilă-Ardelean, 2017).

In the current model of Social and Emotional Development (SED), there is increasing evidence demonstrating the significant impact of social and emotional competence on performance outcomes and suggesting that competencies can be refined. Spencer (2001) even argues that emotion-based training and professional development programs develop skills and subsequently add economic value for organizations.

Competencies are not static and can be improved through the learning process, unlike constructs such as personality and general intelligence that tend to remain unchanged until adulthood (Seal, Boyatzis, & Bailey 2006; Gavrilă-Ardelean, & Moldovan, 2014). The acquisition of knowledge, skills, and understanding is a part of learning, which is defined as a relatively permanent change resulting from experience. According to Kolb (1984), the process of learning involves the transformation of experience in creating knowledge. To manage these transformations, there are a series of discontinuities or discoveries that form an iterative cycle that leads to lasting individual-level change. Individuals can navigate these discontinuities by using a change model.

II. Models of Socio-Emotional Development

The model of SED proposed by Seal, Naumann, Scott, and Royce-Davis

Seal, Naumann, Scott, and Royce-Davis (2010) proposed a social and emotional development model that integrates different theories and combines four interconnected factors to create a university context.

- Self-awareness: This factor includes self-emotional awareness, accurate self-evaluation, and trend identification (preferences). Self-emotional awareness comprises identification (knowing current states and feelings) and cause (recognizing triggers of emotions). Accurate self-evaluation involves talents (assessing strengths) and limitations (assessing weaknesses), while trend identification includes approach (knowing preferences) and avoidance (knowing dislikes). These elements form the core of the SED model, serving as the foundation for student learning.
- Consideration of others: This factor involves attention to consideration for others, emphasizing caring respect for individuals and situations. It includes empathy (understanding how others) and monitoring (recognizing and adjusting behaviors based on anticipated consequences). The foundation for respect for others is established by empathy and monitoring, which influences students' ability to recognize and understand diverse perspectives.

- Connection to others: The focus here is on building meaningful relationships, encompassing ease and effort in developing quality connections. The foundation of meaningful relationships is sociability and intimacy, which are crucial for students' involvement in learning relationships and opportunities for deep learning.
- Impacting change: The final factor centers on positively influencing others, encompassing the tendency to seek leadership opportunities and motivate change. Impact includes initiative (taking the lead role and enjoying group responsibilities) and inspiration (having confidence in leading and motivating others). Individuals can exert positive influence on others by establishing initiative and inspiration.

In summary, the SED model incorporates these four factors: self-awareness, consideration of others, connection to others, and impacting change, creating a comprehensive framework that addresses social and emotional competencies crucial for students' holistic development and success in a university setting.

Bar-On's Model of Socio-Emotional Development

To assess different aspects of social and emotional intelligence and explore its conceptualization, the Emotional Quotient Inventory (EQ-I) is developed using the theoretical foundation of the Bar-On model. This model posits that social and emotional intelligence is a mix of interdependent emotional and social competencies, inhibitors, and facilitators that collectively determine how effectively individuals understand and express themselves, comprehend and relate to others, and handle daily challenges. Five key components are outlined in the model, each of which encompasses a range of related competencies, facilitators and skills. Efficient self-expression, adept understanding and connection with others, and the ability to cope with daily challenges and pressures are all aspects of emotional and social intelligence that are aligned with this model (Bar-On, 2006).

An estimate of someone's emotional and social intelligence can be obtained through the EQ-I, which is a self-report measure of emotional and social intelligence behaviors. It was notable that it was the first measure of its kind to be published by a psychological publisher (Bar-On, 1997), the first measurement was examined by peers in Buros' Mental Measurements Yearbook (Plake & Impara, 1999) and is now considered the most commonly employed measure of emotional-social intelligence.

To sum up, the EQ-I is comprised of 133 items presented as brief sentences, using a 5-point response scale with a textual response

format ranging from "very rarely or not true about me" (1) to "very often true about me or true about me" (5). Bar-On (1997) provides a complete list of inventory items in its technical manual that are targeted for individuals aged 17 and above. The EQ-I is divided into five scales, each of which has specific subscales that provide a detailed understanding of an individual's emotional and social intelligence. These scales and their corresponding subscales are as follows:

1. Intrapersonal:
- Self-regard
- Emotional self-awareness
- Self-expression
- Independence
- Self-actualization

2. Interpersonal:
- Empathy
- Social responsibility
- Interpersonal relationships

3. Stress Management:
- Stress tolerance
- Impulse control

4. Adaptability:
- Reality testing
- Flexibility
- Problem-solving

5. General Mood:
- Optimism
- Happiness

These scales and subscales offer a comprehensive evaluation of an individual's emotional and social competencies, providing insights into various aspects of their interpersonal relationships, stress management, adaptability, and overall mood. The EQ-i's detailed structure enhances the precision and depth of its assessment, making it a valuable tool for understanding and developing emotional and social intelligence.

Social-Emotional Competencies

Cognitive abilities, introspection, emotional literacy, and self-awareness are non-cognitive aspects of emotional intelligence that are

crucial for overall functioning and adaptation. In its widest sense, it encompasses overall mood, interpersonal and intrapersonal skills, stress management, and adaptability, which is crucial for therapeutic relationships in both professional and personal settings. The interconnected nature of emotional intelligence is illustrated by changes in one area that often trigger changes in others. This interconnectedness is dynamic and adjusts with increased awareness of one's emotions (Khurram & Mobeen, 2023).

Individuals' capacity to express, receive, and regulate emotions, as well as their success in building and maintaining relationships, are all part of socio-emotional abilities. Denham (2006) brought out the essential elements of this field, which include self-awareness, emotional expression, emotion and behavior control, social problem-solving skills, and social interaction skills. The elements mentioned can be in a continuous evolution and would represent basic social skills. (Denham, et al., 2012; Rose-Krasnor, 1997a, 1997b).

The term "socio-emotional competence" broadly encompasses abilities related to perceiving, expressing, regulating, and evaluating emotions during interactions. Theoretical models frequently incorporate four fundamental domains: the ability to empathize, the capacity to form relationships, and constructive coping with intense or problematic social interactions (Leuzinger-Bohleber, 2014).

Given this general theoretical framework, aimed at helping me build a professional training plan that targets socio-emotional development in the university domain, I have chosen a few elements from the socio-emotional development model proposed by Bar-On, which I will further develop below. I specify that the chosen elements have a direct connection to social work practice, and my experience in the field of social work and as a student dictate that those are the most relevant or immediately important aspects in the training of students.

III. A proposal for an educational training activity for social work program students

Group of participants: Social Work, Year 3. The third year is a crucial period for students specializing in social work. In the earlier years, students acquired theoretical information on various aspects of social work, and the subjects in the final year become more practical. Given the current situation, students are on the verge of coming into contact with beneficiaries—groups/persons in various vulnerable situations and beyond. However, the question arises: are they sufficiently prepared, or do they have enough information to put into practice everything they have accumulated over these years? Therefore, this training project aims to emphasize crucial aspects of a social worker's life in relation to their profession.

Duration: The training activity will take place over 3 months, during which students will have two training sessions per month (6 stages in total).

Objective of the activity:
O1 – Awareness of the importance of empathic ability and its practical application.
O2 – Increase social responsibility and correlate it with social work.
O3 – Awareness of the role of interpersonal relationships.
O4 – Management of stressful moments in professional life.
O5 – Finding effective methods for problem-solving.
O6 – Awareness of the role of optimism in social work.

Training methods: debate, exercise, role-playing, storytelling, description, exemplification.
Training materials: worksheets, posters, markers, A4 sheets, colored pencils, laptop, projector.

STAGE 1: EMPATHY (1h40min)
Methods: debate, exercise, role-playing, storytelling, description, illustration
Training tools: worksheets, boards, markers, A4 sheets, colored pencils, laptop, projector
Evaluation methods: feedback and active involvement in activities

Activity stages and allocated time:

- Introduction to the training project - 10 minutes: A few words about the overall framework of the project: what socio-emotional development is, the presentation of the model of socio-emotional development (Bar-On), and the elements discussed in the project activities.
- Introductory discussion - 10 minutes: The empathy-related activity will begin with an open discussion about empathy. Therefore, answers will be sought to the following questions: What does empathy mean? What role does it play in our lives? How about in a student's life? And in a professional's life? Why is it important? What happens if we lack empathy?
- Presentation of a concrete situation - 30 minutes: Students will be asked to present a specific situation in which they watched a movie or read a book and empathized with a character. They will have 10 minutes to put on paper a title and a drawing that conveys what they felt at that moment.

- Break - 10 minutes
- Role-playing - 40 minutes: The large group will be divided into two smaller groups, one representing the professional and the other the beneficiary. The group representing the beneficiary will be tasked with constructing a story about a divorced woman with a teenage daughter, who, during counseling sessions, shares an important situation with her that the social worker disagrees with. The group representing the professional will need to find a response based on empathy. Impressions left by the exercise will be discussed at the end.
- Feedback - 10 minutes: Was the activity helpful? Did we learn something new?

STAGE 2: SOCIAL RESPONSIBILITY (1h40min)

Methods: debate, exercise, storytelling, description, exemplification

Training tools: worksheets, boards, markers, A4 sheets, colored pencils, laptop, projector

Evaluation methods*:* feedback and active involvement in activities

Activity stages and allocated time:

- Introductory Discussion - 10 minutes: Brief lecture on the fundamental rights of humans, found in the EU Charter of Fundamental Rights: https://fra.europa.eu/ro/themes/eu-charter-fundamental-rights
- Creating an Exhibition - 60 minutes: Groups of 5 people will be created. The groups will have 40 minutes to create a poster about a situation illustrating social responsibility. Results will be presented, and a plenary debate will follow.
- Break – 10 minutes.
- Ethical Dilemmas - 20 minutes: Social responsibility will be outlined concerning professional responsibility through examples of ethical dilemmas that may arise in the social worker's intervention.

Examples to be discussed:

A pregnant minor who comes to the social worker for help and asks him not to disclose the secret to her parents.

A drug-dependent teenager in a situation similar to that of the pregnant teenager. Risk and protective factors will be considered.

- Feedback - 10 minutes: What did we learn? How can we apply what we learned?

STAGE 3: RELATIONSHIPS WITH OTHERS (1h40min)

Methods: debate, exercise, role-playing, storytelling, description, exemplification

Training materials: worksheets, posters, markers, A4 sheets, colored pencils, laptop, projector

Evaluation methods: Student feedback, involvement in the activity

Activity stages and allocated time:

- Introductory discussion - 20 minutes: Students will have 10 minutes of reflection on a moment when they faced a difficult situation and were helped by someone to overcome it. Debate on the importance of interpersonal relationships.
- The importance of the multidisciplinary team in social work - 40 minutes: Working in teams: Groups of 4 will be formed, and the following task will be assigned: Choose a social service for a vulnerable group (residential or day) and make a list of multidisciplinary team members. Then, outline, in general, some main tasks for each.
- Break - 10 minutes
- Ecomap - 30 minutes: Individual work: students will have 20 minutes to create 2 ecomaps, one referring to personal life and the other to professional life. The ecomap model and its relationships will be drawn by each student.
- Feedback – 10 minutes: What did we learn? How can we apply what we learned?

STAGE 4: STRESS MANAGEMENT (1h50min)

***Methods*:** debate, exercise, storytelling, description, exemplification

***Training materials*:** worksheets, posters, markers, A4 sheets, colored pencils

***Evaluation methods*:** Student Feedback, Involvement in the Activity, Questionnaire Results

Activity stages and allocated time:

- Introductory discussion - 10 minutes: What is burnout from students' perspective? Burnout = stress, exhaustion, lack of will, lack of productivity (Cautin and Lilienfeld 2014)
- Measuring burnout - 30 minutes: Students who have been in one of the following situations will raise their hands (Burnout Measurement Scale, Malach-Pines 2005): Has it ever happened that when you think about college, you feel: Tired? Disappointed? Hopeless?

Without escape? Depressed? Sick/ill health? Useless? Have difficulty falling asleep? Concrete situation examples will be discussed.

- Break - 10 minutes
- Stress management methods - 30 minutes: After this measurement exercise, students will be asked about the coping methods they used. Students will be given sheets with the simplified Dewe and Guest (1990) stress coping model:

When I was stressed at college, how often did I turn to: Rational thinking: focusing on solutions, Emotional release: expressing feelings, Recovery and preparation to cope with the problem: taking a break, Action delay and distraction through other activities, Passive approach: trying not to be affected. Students have 10 minutes to think about which coping method they used when they were in a state of burnout. In the next 20 minutes, each strategy will be discussed with examples from the students.

- Stress in the social work occupation - 20 minutes: What factors can lead to burnout in social work? What coping methods from those listed can we use to overcome stress?
- Feedback - 10 minutes: What did we learn? How can we apply what we learned?

STAGE 5: PROBLEM SOLVING (1h40 min)

***Methods*:** debate, exercise, storytelling, description, exemplification

***Training materials*:** worksheets, posters, markers, A4 sheets, colored pencils

***Evaluation methods*:** Student Feedback, Involvement in the Activity, Questionnaire Results

Activity stages and allocated time:

- Discussion Introduction - 10 minutes: Continuing from the previous stress management activity, we will focus further on problem-solving. Have we recently encountered a challenging situation? How did we overcome it?
- Problem Solving Steps - 20 minutes: Wood's Model (2003):

Motivation (Can I do it?)
Problem Definition (What information do I have about it?)
Problem Exploration (What goals do I set?)
Solution Planning (sub-problems and methods for solving each one)
Plan Implementation
Solution Verification
Solution Evaluation

Explanation of the model and its exemplification with a problem

(provided by the students).

- Thinking Hats Method: Presentation of the method - 10 minutes:

There are Six Colored Hats Corresponding to Thinking Methods (De Bono 1985):

Black Hat – What is the evidence? Is what we propose correct? What is the logic behind what is being proposed? Is it possible? Why can't this plan work? What might not work if we proceed this way? What are the weaknesses of this strategy? What threats do we need to face? What consequences will result from these actions?

Blue Hat – Defining the goal, exploring alternatives, how to achieve what we have set out, exploring implications, formulating a strategy, organizing a thinking plan, defining expectations.

Green Hat - A reactive idea, immediate, a starting idea, an additional idea, and a new idea.

Red Hat - What are the feelings about this issue, what do we find interesting about the idea, what do we not like about this idea, what other choices would we like to make, how do we evaluate the solution.

White Hat - What information do we have about the problem, what information do we need, what questions should we ask to obtain relevant information, where does the information come from, how will we analyze and understand the data, is the information relevant, what other information could be helpful.

Yellow Hat - What are the advantages, what are the strengths, why will this idea solve the problem, are the resources sufficient, will the solution be done in a timely manner, what contribution can be made, how can the plan be improved, how can the situation be improved.

- Break: 10 minutes
- Applying the Model - 40 minutes: Students will be divided into 6 groups, each assigned one of the 6 colors. Each group will think about solving a common problem (for example, writing the thesis or another issue raised by students) and will go through the stages corresponding to each hat.
- Feedback – 10 minutes: What have we learned? How can we apply what we have learned?

STAGE 6: OPTIMISM (1h40 min)

***Methods*:** debate, exercise, storytelling, description, exemplification

Training materials: worksheets, posters, markers, A4 sheets, colored pencils

Evaluation methods: Student Feedback, Involvement in the Activity, Questionnaire Results

Activity stages and allocated time:

- Introductory discussion - 10 minutes: We start the activity with a short questionnaire - https://researchcentral.ro/detalii.php?id=153
- SWOT Analysis – 30 minutes: Individually, each student will conduct a SWOT analysis, considering the completion of their studies. In the end, we will focus on optimistic methods of viewing the situation.
- The Importance of a Positive Approach in Social Work – Part I - 10 minutes: Debate: What is a positive approach? Have you encountered this concept before? How can we implement it in the profession of social work?
- Break: 10 minutes
- The Importance of a Positive Approach in Social Work – Part II - 40 minutes: Role-playing games: Two groups will be formed, the social worker and the beneficiary. The following situations will be given in which the social worker must adopt a positive approach:

The beneficiary's child has a severe disability. How do we break the news?

The beneficiary has cancer. How do we approach the situation?

The beneficiary's brother is addicted to drugs. How do we support him?

Each group will specifically establish the details of the cases, starting from the given situations, and will send a representative for each case.

- Feedback – 10 minutes: What have we learned? How can we apply what we have learned?

IV. Conclusions and Possible Directions for Further Development:

To evaluate the training program and summarize the conclusions, conducted a SWOT analysis:

Strengths (S):

Diversity of Activities: The inclusion of varied activities for each stage ensures a rich and dynamic learning experience. This approach caters to different learning styles and keeps participants engaged throughout the training program.

Activity Details: Providing comprehensive details for each activity is essential for seamless implementation. Clear instructions and well-defined objectives contribute to the smooth execution of the program, preventing potential challenges.

Theoretical Foundation: Ensuring that each activity is grounded in theoretical concepts adds depth and relevance. This theoretical underpinning enhances the academic rigor of the program, helping students connect practical experiences with established social work principles.
Student Involvement: The emphasis on student engagement is a key feature. Initiating discussions at the beginning of each stage and centering activities around the students' experiences, emotions, and opinions fosters a student-centric approach. This strategy encourages students to actively participate, make choices, and develop unique intervention methods, promoting individualized learning.
By incorporating these elements, the training program not only covers a broad spectrum of activities but also ensures that each activity is well-structured, theoretically grounded, and focused on student engagement. This holistic approach contributes to the program's overall effectiveness and the participants' meaningful learning experiences.

Weaknesses (W):
Activity Details: One identified weakness is the potential inadequacy or lack of detail in the descriptions of activities. If the details are insufficient or unclear, it could pose challenges during the implementation phase. To address this, it's crucial to ensure that all activities are thoroughly explained, leaving no room for ambiguity.
Time Allocation: Another weakness lies in the allocated time for each stage. It's acknowledged that the set time for each stage may be insufficient, and discussions might exceed the allotted time. This could lead to rushed activities or incomplete discussions. Adjusting the time frame for each stage or finding strategies to manage time more effectively could enhance the overall program delivery.
By addressing these weaknesses, the training program can achieve better clarity in activity descriptions and optimize time management, ensuring a more successful and impactful learning experience for the participants.

Opportunities (O):
Practical Approach: An opportunity lies in the practical approach of the program. As students are nearing the completion of their studies, this project provides valuable exposure to elements of social work. The practical application of theoretical knowledge enhances their understanding and prepares them for real-world scenarios, bridging the gap between academia and professional practice.
Practice Enhancement: The program offers an opportunity for students to enhance their practice. Building on the theoretical and practical

aspects accumulated during their years of study, this project provides a platform to improve specific areas within the field of social work.
By capitalizing on these opportunities, the training program can empower students to seamlessly transition from academic learning to hands-on practice, fostering a more comprehensive and effective learning experience.

Threats (T):
Examinations and High Workload: A significant threat to the success of the training program is the concurrent presence of exams and a high level of academic workload. As students approach the conclusion of their studies, they may find themselves immersed in crucial exam preparation, potentially overwhelming them with competing priorities. This can impact their ability to fully engage and participate in the training activities, hindering the effectiveness of the program.
Boredom: Another potential threat is the perception of boredom among students. They might perceive the activities as repetitive or uninteresting, which could lead to a lack of engagement and enthusiasm. Boredom poses a risk to the overall effectiveness of the training program, as it may hinder students' receptiveness to the content and impede their ability to extract valuable insights from the activities.
Mitigating these threats involves careful scheduling, considering the students' academic commitments, and ensuring the activities remain dynamic and relevant to maintain their interest throughout the program.

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THE ROLE OF COMICS IN FACILITATING POSITIVE INTEGRATION IN THE CLASSROOM

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Abstract: *In any field of activity, communication is the glue that fosters good understanding and healthy relationships between living beings. Referring strictly to didactic communication, it is imperative due to the fact that the educational act relies on all types of communication in order to lead to the success of the educational act which is done, as we know so well, through the activity of learning which must be done voluntarily, by the learner. In an ever-changing society, where parents are busy and find it difficult to take the time to communicate with their children, using the after-school services of schools and various organizations, it is up to the teacher to communicate effectively and to help the pupil to develop his or her intellectual, mental, physical, etc. skills. This article aims to show how we can facilitate a sense of well-being in the school environment using the comic strip technique.*

Keywords: *literacy; communication skills; comics; school wellness.*

Theoretical incursions

Communication - the individual's key to society

The success of the learning process and the results achieved depend on the methods used. Great pedagogues have pointed out that using different methods makes essential differences in the preparation of pupils, that the acquisition of new knowledge or behaviours can be achieved more easily or more difficult, depending on the methods used (Bocoș, Gavra, Marcu, 2008).

Communication is the individual's key to society. Lack of communication leads to an imminent estrangement from the group, team, society. Group means rules, reputation, purpose, teamwork. As long as there is good communication, there is maximum return. Interpersonal communication is vital because it can be an effective

means of solving problems through the functions it performs: understanding and knowledge, conscious relationship with others, influence and persuasion (Bocos, Gavra, Marcu, 2008).

Quality of education and quality of life closely linked to education reforms

Current employment trends in the labor market are to move away from relying on the qualifications obtained by candidates for particular jobs, with companies creating their own training programs for the skills required. People are migrating to areas where profit thrives economically, so we need to train individuals capable of entering the workforce. Thus, the focus must be on quality education for all, which meets the needs of the individual on the one hand and the demands of society on the other (LEN 1/2011, Art.3, Idealul educațional).

In order to meet today's demands, the education system has had to resort to a series of reforms to adapt schools to a new age, where much more is required of the graduate than just specialization. The current reforms put the focus on a learner-centered curriculum. The focus is on the needs of learners for further success, and attempts are being made to adopt standards and assessment procedures that will enable them to succeed in a professional and personal field. The emphasis is no longer on acquiring and storing information, but on what the learner can apply what they have learnt in the future. (Egerău et al, 2022)

The need for communication skills training

A teacher who focuses on developing skills for each pupil in the class according to their profile, and not just for pupils with a high capacity to absorb knowledge, will look at the subject they teach differently and succeed in planting skills in their pupils that will be useful throughout their lives. This is not achieved in the short term, but is completed at the end of each cycle of education. We, as teachers, need to change our traditional perception and move 'subject teaching' into a set of contexts that really support the learner to form key competences, learning to make inter- and trans-disciplinary openings (Torkos, Coșarbă, 2023). For learning beyond the textbook to be beneficial, and for the future adult to be able to integrate into society, in a future job, with the help of the skills formed in school, the teacher must be the pupil's role model and partner in learning, showing curiosity and openness towards the pupils, exploring with them to seek answers to questions and solutions to problem situations all the time.

The notion of communication competence has evolved to encompass increasingly broad areas of knowledge. The Council of Europe considers that there are six components of communication competence: linguistic competence, socio-linguistic competence, discourse competence, socio-cultural competence, strategic competence and

social competence (Bocoș, 2002.)
In order to facilitate the positive integration of pupils in the school environment, the teacher must use a series of teaching strategies to make the pupil feel that he/she is an integral part of the group, to have the courage to express him/herself, to participate actively in the proposed activities and to be able to successfully carry out the tasks given.

Recent perspective
Using comics in the classroom as a method to promote active participation
The comic strip technique could not be simply defined, so there are several interpretations in its definition; while the Cambridge dictionary defines it as "a series of amusing drawings of small size, with an insert of text, often published in a newspaper", Professor Dr. Mircea Deacă, in the article "But what are comic strips?", says about them: "Comics are definitely a mixed, blended or borderline genre. The genre in question contains part literature, part cinema and part fine art". There are several definitions of this technique, as it is not a common term and not within everyone's reach, so there is no consensus in defining comics (Deaca, 2011).
Comics, used as a teaching method or procedure, can be seen as organized learning, because by using this technique the teacher encourages, but at the same time guides the student to use it to create something new, to externalize some feelings or feelings by associating them with fictional characters/imagination. Certainly, education using this technique is an experimental one, which helps to develop self-confidence.
Comics in school can be used in several organized activities taking place both inside the classroom/school environment and outside the school, where pupils can be creative, communicate more freely with each other, establish other relationships and then illustrate them with the characters they have drawn. We can use the comic strip technique in visual arts and practical skills classes, but with great success we can also use it in personal development or Romanian language and literature classes to put the stories created by the pupils into images, thus bringing them to life and creating a feeling of well-being and satisfaction by creating a different and original project.
Comic book education can express a different form of school learning through the curriculum than we are used to in the classroom. Using this technique, we will not sit with text and notebook in front of us, students will be encouraged to give free rein to their imagination, to collaborate actively with their peers, to express themselves, so they will be able to communicate with each other, making original

creations, but they will also be able to communicate their feelings and feelings, to communicate actively with the teacher.
We believe that the comic strip technique can be the link that produces the development of communication skills through an education in a good mood. We believe that, in order to achieve the desired results, the teacher must use the best teaching strategies, even if the way of teaching is different. The comic strip technique will enable pupils to communicate their feelings, feelings, desires, knowledge, etc. in a completely different way from what is proposed in the school curriculum, and they will be able to perceive this kind of expression/communication as a game, which a competent teacher will know how to enhance and which will lead to the achievement of the proposed operational objectives, in our case the development of communication skills and facilitating positive integration in the classroom.

Facilitating positive pupil integration in the classroom through the use of comics

Comics are part of the category of multimodal texts. Multimodal text contains two or more ways of communication: visual, linguistic, audio, spatial, gestural, involving interference between word, image, sound, movement and gesture. By using multimodal text in communication classes and beyond, we want to facilitate both the development of literacy and communication skills and create a positive mood and atmosphere for students in school. Because of this, some of the modal texts are already in the school textbooks, and pupils learn through cooperation in writing some of them (e.g. the poster). In the paper "Developing reading competence through multimodal texts", Aurelia Domnițeanu, from the perspective of PIRLS and PISA, explains the importance of developing reading competence in pupils through the use of multimodal texts, with comics being used mainly by 5th grade pupils. She concludes on this subject as follows: "Multimodal texts are worthy of attention because of their attractiveness and their prevalence in pupils' lives, and their share in the educational approach will certainly increase, because, as Monica Halaszi says, "since we are born, we read the messages on people's faces, we read colors. All this is reading" (www.lav2013.cnlr)

Research methodology

Objectives of the study

Due to the fast pace of the 21st century and the development of technology, the school and therefore the teacher must implement a series of teaching strategies that facilitate the development of learners and their positive integration in school. The present research aims to

test comic strips in the classroom at the developmental curriculum cycle, i.e. grade 3, for the positive integration of learners in the classroom. Through dyad work and collaboration between students we aim to achieve a positive mood in the classroom.

Hypothesis

The use of worksheets based on the comic strip technique and valuing content of a socio-emotional nature will lead to the positive integration of third grade pupils in the classroom.

Methods and tools used in the research

In the first stage of the research, the real situation of the class that was subjected to the experiment was analyzed before applying the worksheets based on the comic strip technique. In this stage a questionnaire "The EPOCH Measure of Adolescent Well-being Margaret L. Kern, Lisbeth Benson, Elizabeth A. Steinberg, Laurence Steinberg University of Pennsylvania and Temple University" was administered to third-grade students on aspects concerning their well-being in the class they are in and the degree of integration in the class, as well as their relationships with peers and teachers in the class. This stage was necessary because before applying the intervention it is necessary to know exactly the correct, clear and real situation of the class in order to prepare and develop the right tools adapted to the level we want to reach.

A specific test was administered to determine classroom well-being based on seven main types of items that were tracked:

- Group membership
- Group cohesion
- Self-esteem
- Confidence in own strengths
- Determination to solve the proposed tasks
- Awareness of the need to learn
- Relating to classroom teachers

The collected results were analyzed to facilitate the preparation of future activities that were prepared and used to carry out the science experiment, in order to positively integrate the students into the classroom and create a sense of well-being within the group.

The worksheets with elements based on the comic strip technique were used for two weeks in the third grade with 20 students, following the steps, structure and characteristics of the method mentioned above.

Research sample

To test the hypotheses, 20 third grade students from the Theological Baptist High School of Arad will be included in the research. The

school in which the student's study is considered to be an "average" and "good" school. All students were assessed in the ascertainment and post-test phase.

Description of the contingency plan

The formative experiment took place during two weeks of school. Students in the experimental group solved worksheets based on the comic strip technique, working in dyads and in groups of five students, cooperatively solving the worksheets and tasks. The tasks were different, with students having to complete lines based on the proposed drawings, to draw some fragments of texts studied in the Roman language and literature classes or based on compositions or role plays written by them.

The learning situations have been created with the aim to produce a change in students' behavior, to induce a feeling of well-being in the school environment and especially in the class they belong to. "...., the particularities of learning from the point of view of learning situations lead to behavioral changes in students in several ways: as interference situations - a permanent process through which the student is taught to learn and how to learn; as performance reporting through which students are motivated and prioritized; by experiencing interaction, communication, practice experiences that are predetermined by teachers and by the relative stability that shows that the behavioral change produced by learning is lasting". (Roman, Balaș, 2014).

In order to develop the students' belonging to the group, they were divided into groups of five and, based on the reading of the book "Asterix and the Tour of Gaul", they were given work tasks; these consisted of role-playing and dramatization. The teamwork gave them a better understanding of how valuable their qualities are and that everyone is different, but by working together they achieved good results.

Another assignment the students received was worksheets based on the comic strip technique. The task was to fill in the bubbles and cartridges left unfilled within six or eight boxes representing a sequence in the lives of comic strip characters. This task was auspicious as the students killed in dyads, they had the opportunity to create their chosen character's lines, identifying with the character and expressing in this way some feelings they may have repressed before.

At the end of the intervention, students were again administered "The EPOCH Measure of Adolescent Well-being Margaret L. Kern, Lisbeth Benson, Elizabeth A. Steinberg, Laurence Steinberg University of Pennsylvania and Temple University" questionnaire and then we compared the students' results at the beginning of the experiment with the final results to confirm the experimental hypotheses.

Research results

The research activities were carried out in class during the school day, using worksheets based on the comic strip technique. At the beginning of the experiment, the students' degree of integration was tested using a questionnaire "The EPOCH Measure of Adolescent Well-being Margaret L. Kern, Lisbeth Benson, Elizabeth A. Steinberg, Laurence Steinberg University of Pennsylvania and Temple University", the scores received were processed and analyzed in statistical software. Data collection took place over two weeks.

The questionnaire "The EPOCH Measure of Adolescent Well-being Margaret L. Kern, Lisbeth Benson, Elizabeth A. Steinberg, Laurence Steinberg University of Pennsylvania and Temple University" was structured based on seven main types of items that were tracked: group membership, group cohesion, self-esteem, confidence in one's own strengths, determination to solve tasks, awareness of the need to learn, and relating to classroom teachers. The answers to the questions are according to the degree of satisfaction, ranging from not at all agreeing with the statement to total agreement.

Twenty students, 8 girls and 12 boys from the developmental curriculum, grade 3, were interviewed. Some limitations were related to their understanding of terms that are not common to some third graders, but which were explained to them with tact and patience.

The main objective of the research was to find out the degree of integration of students in the developmental curriculum cycle, i.e. grade 3, in the class they are in. Participants were chosen from a single class to test how each of them felt in the same school environment.

The analysis shows the following results:

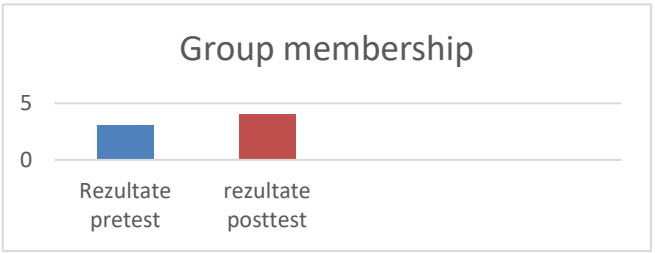

Figure 1
Group membership

Regarding group cohesion we received the following answers:

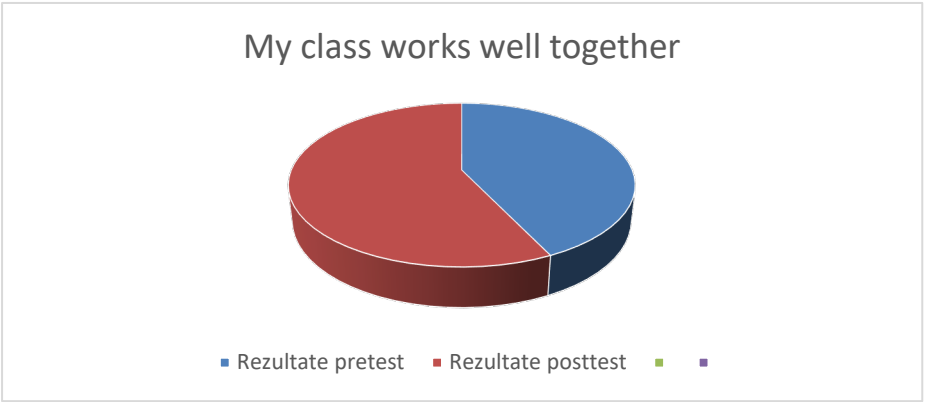

Figure 2
Group cohesion

We wanted to see how the students also related to themselves before the experiment took place. The results showed us that there is still some work to be done in this area too, but unlike the girls, the boys have higher self-esteem.

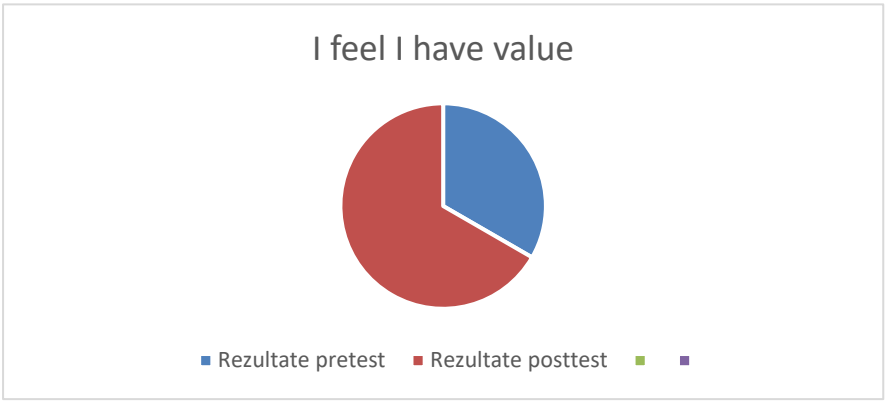

Figure 3
Self-esteem

In terms of self-confidence, it was found that students are confident even when faced with unforeseen situations, but have trouble staying calm when faced with difficult situations.

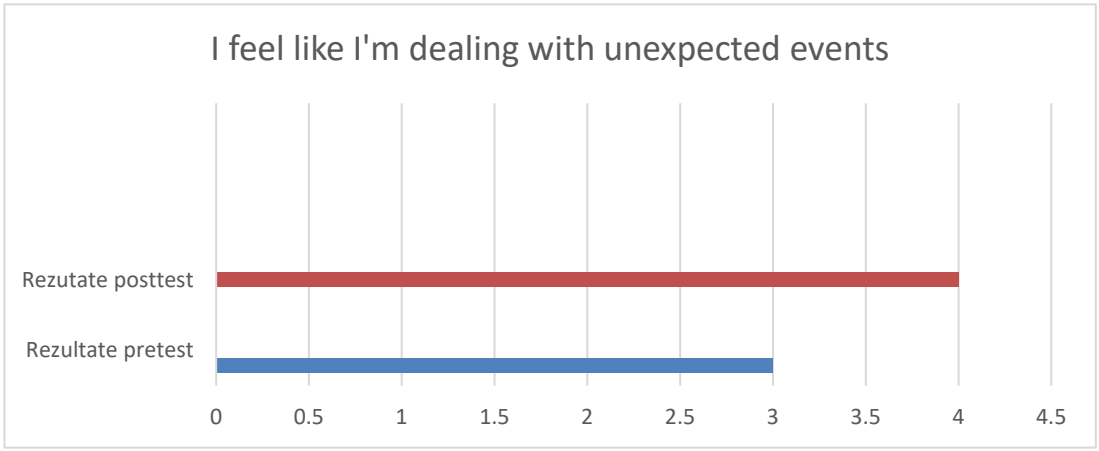

Figure 4
Confidence in own strengths

A fifth element tested with the questionnaire was to see how determined they were to solve the tasks they were given. Here it was found that girls are more conscientious than boys, but they also participate in solving tasks.

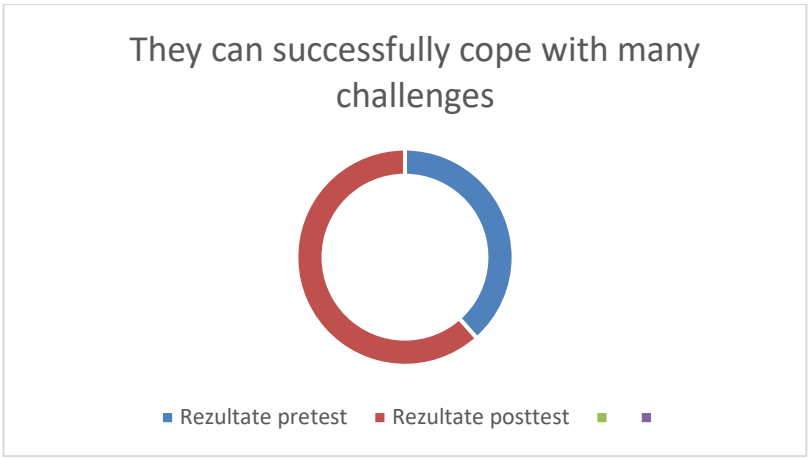

Figure 5
Determination to solve the proposed tasks

Another very important element in our research was to see how aware they are of the need to learn, whether they like the learning activities they have in class and whether they are aware that the learning activity is a preparation for their future. It was gratifying to see that the third graders are aware that they are learning for themselves.

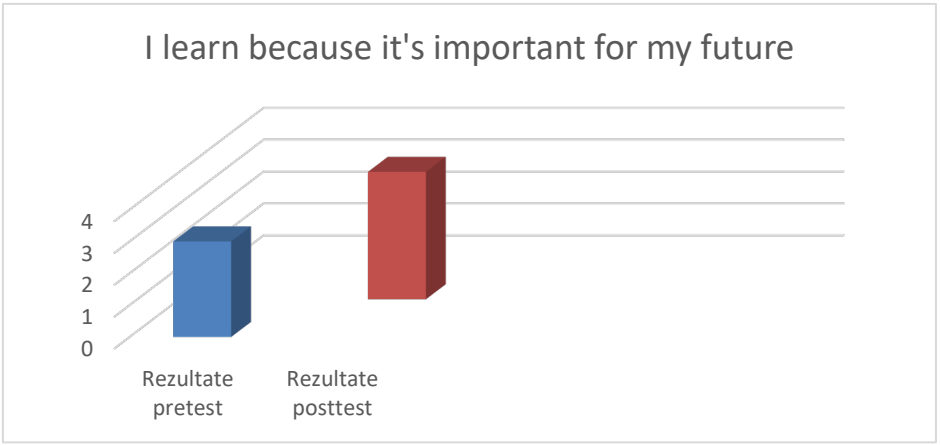

Figure no. 6
Awareness of the need to learn

At the end of the questionnaire, we wanted to see how they relate to the teachers in their class and whether they are aware of the moral and intellectual support the teacher gives them. With one exception we found that students know that they are supported by their teachers and that they put credit in each of them.

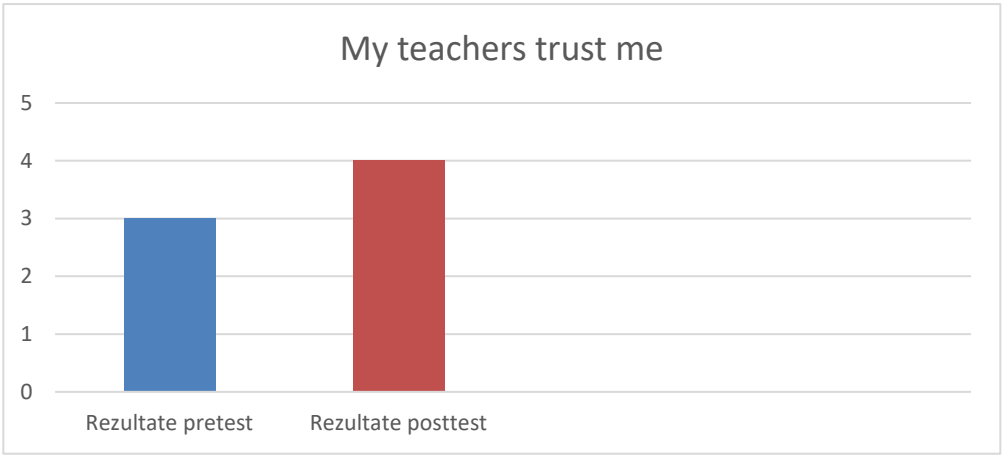

Figure 7
Reporting to classroom teachers

In the second stage of the experiment, during two weeks, in the Romanian language and literature and A.V.A.P. classes, students were given work tasks to solve either in dyads or in groups. The tasks consisted of worksheets based on the comic strip technique.
At the end of the two weeks the questionnaire "The EPOCH Measure of Adolescent Well-being Margaret L. Kern, Lisbeth Benson, Elizabeth A. Steinberg, Laurence Steinberg University of Pennsylvania and

Temple University" was administered again. We found that there were rewarding changes in students' well-being in the school environment and empathy for classmates, with students appreciating teamwork that led to greater unity and trust in their peers.

Conclusions

In order for students to have the required training profile at the end of the developmental curriculum cycle, grade 4, the teacher must use various teaching methods and strategies, actively involve them in learning and in their own training. Non-formal education gives pupils the opportunity to develop values, skills and competences that are different from those developed within the formal education structure. "The teacher who facilitates non-formal activities needs to be more flexible, adaptable and quick-witted, as well as enthusiastic. " (Roman, Coșarbă, 2020)

In the article and the research, I have presented above I have come to the following conclusions:

- The use of the comic strip technique has brought added value to the Roman language and literature classes;
- Working in dyads and small groups students understood their belonging to the group;
- Group cohesion was formed when students had to solve tasks outlined in worksheets based on the comic strip technique;
- The worksheets based on the comic strip technique were designed to make pupils more responsive to each other's needs and aware of their creativity.

One rewarding thing was that pupils were aware from the start that they were learning for their future, but also that teachers were invested and confident in their ability. By focusing on their learning power, creativity, drive, students become more involved in their own education.

Future discussions

Following the analysis of the research we have done; we would like to implement an optional program based on the comic strip technique in the classroom next school year to develop communication and literacy skills in 4th grade students. "Non-formal activities are designed by teachers, based on educational purposes, formative and informative knowledge, characterized by flexibility, having the quality of optional or optional activities" (Roman, Coșarbă, 2020).

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RELEVANT KEY PROFESSIONAL SKILLS AND THE LEVEL OF THE EDUCATION SEEKERS' AWARENESS IN THIS REGARD

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Abstract. *The modern development of the professional market is characterized by rapid transformations associated with the widespread use of digital technologies and the advent of artificial intelligence. This situation affects the field of employment, accelerating the emergence and disappearance of professions, and leads to a reassessment of the key professional skills that modern employees should have. However, there is a certain gap between the skills that are needed in the professional market and the ability of the education system to ensure their development. Given the trends of rapid technological transformations and corresponding changes in the employment market, professional education should train specialists capable of constant improvement of their professional level, possible retraining. Such tasks involve a certain change in the functions and objectives of higher education, and therefore scientists are increasingly paying attention to the process of formation and development of those students' skills which will contribute to the realization in the employment market even during its structural transformations. The purpose of the study is to review the extent to which the students themselves know and understand the content and requirements of modern skills with a view to improving the professional training of future specialists by the higher education system. Based on research in the field of professional skills, the skills identified at the World Economic Forum 2023 in Davos have been chosen as a guide. A survey of education seekers with the aim of identifying the understanding of the importance of the specified skills has shown a gap between the optimal set of skills and the education seekers' perception of them. We observe a shift in the preferences of education seekers towards technological skills, and at the same time*

insufficient awareness of the importance of so-called soft skills, which collectively constitute the sphere of skills necessary to achieve professional and life success and is an indicator of human capital. The findings support the need for purposeful development in the process of professional training of the key skills that employees need today in order to improve the conformity of education and training with the requirements of the professional market.

Introduction

The rapid development of technology in the 21st century is causing global changes in the economy and employment. There are different views on how the rapid development of digital technologies will affect the economic progress of countries. According to forecasts of the World Economic Forum in Davos, the rapid labor automation will lead to a significant loss of jobs and their replacement by machines within the next five years (Future of Jobs Report, 2023). It is emphasized that a significant part of professions that have previously been the prerogative of people is under threat of extinction. Other researchers believe that the development of technology, on the contrary, will contribute to the emergence of new types of employment, that the reduction of jobs will be balanced by the creation of new jobs in new industries - "jobs of tomorrow" (Clark, 2020). The trends arising under the influence of the development of artificial intelligence and digital technologies indicate that in the coming years there will be a need for skills capable of providing a number of benefits in the professional market for the individual who possesses them.

Problem statement

As a result of the rapid structural transformation of the employment market under the influence of innovations, during the next decade a significant share of newly created jobs will fall on completely new professions, those that exist now will undergo significant transformations in terms of their content and skill requirements. The World Economic Forum: Future of Jobs Reports 2020 and Future of Jobs Reports 2023 analyze the current skills needed for employment today. Among more than 26 necessary skills, there are both those that have long been formed by education, and those that are new (Future of Jobs Report, 2023). Researchers have pointed out that most existing educational systems were created under the influence of the Second Industrial Revolution, and therefore cannot keep up with the pace at which the digital age creates new scenarios and new demands for the skills (Gratton, 2018). The pace of technological change causes not

only the gap between demand and supply of skills, but, as the reports of the Forum in Davos show, widens this gap. The education system not only in Ukraine, but also in the world fails to react enough to these changes. These trends should be taken into account during the professional training of modern specialists, which should ensure the formation, on the one hand, of resilient, basic skills such as technological, managerial, cognitive; and on the other hand, to prepare for the ability to change and improve one's skills, since, according to research, the skills of modern employees will be transformed within the next five years (Clark, 2020). As noted by Juan Carlos Ayala Calvo & Guadalupe Manzano García (Calvo & Garcia, 2020), today's graduates need more skills for employment than those they received during their studies at higher education institutions. Under such conditions, it is relevant to study the question of how the higher education system responds to such challenges, and whether it is able to train specialists with the key skills identified in the Future of Jobs Report 2023 in Davos. Taking into account the above-mentioned issues on the development and formation of skills in the XXI century, the question warrants answers on the extent to which the students themselves know and understand the content and modern skills requirements with a view to improving professional training of future specialists in the higher education system.

Analysis of research and publications

Recently, skills have been studied in the context of technology-driven transformations in the labor market and challenges facing the education system. A significant amount of research is devoted to the role of skills in employment (Calvo & Garcia, 2020; Salman et al, 2020). Taking into account the trends of rapid technological transformations and corresponding changes in the employment market, vocational education should train specialists capable of constant improvement of their professional level, possible retraining. Such tasks involve a certain change in the functions and objectives of higher education, and therefore scientists are increasingly paying attention to the process of formation and development of those education seeker’s skills which will contribute to the realization in the employment market even during its structural transformations. It is no coincidence that attention is focused on such elements of professional training as "skills" and "competencies", since these are two interrelated components in the structure of professional qualifications.

In the study of professional skills, there are two basic questions that need to be answered: the essence of the concept ‘professional skill’, and the classification of skills. Despite the fact that the skill has been studied for more than a dozen years, the definition of this term has not

yet received a unified formulation. Skill is considered as a component of competence. Competence according to scientists Salman M., Ganie S., Saleem I/ includes two groups of skills - soft and hard skills, i.e. social-communicative and professional skills (Salman et al, 2020).
Researchers often use the terms soft and hard skills to describe related concepts: they are interpreted as flexible skills, life skills, transversal skills, cross competencies, generic competencies, key competencies for a successful life and well-functioning society, key competencies for lifelong learning, 21st century skills, transferable skills, future work skills, skills for talent, skills for social progress, employability skills, core skills, necessary skills, workplace know-how skills, essential skills (Bohdan, 2023).
Other authors Miller, Biggart, & Newton, combine all classifications and introduce the term employability skills - these are the qualities that employers look for in college graduates and on which professional growth and continuous learning depend (Trevelin et al, 2023). The team of authors Del Carpio, Ximena, Olga Kupets, Noël Muller synthesized a variety of views on the essence of the concept of skill and define it as the flexible ability of a person to perform assigned tasks and respond to situations. Skills are certain attitudes, beliefs, and behaviors that can change as an individual develops and can be improved within special programs and policies. They divide skills into three broad categories: cognitive, socio-emotional and technical (Del Carpio et al, 2017).
Despite the existing scientific research on the issues of classification of skills, organization and methods of teaching modern skills, the issue of the level of formation of relevant professional skills and their understanding by education seekers is still poorly studied.

The purpose of the study is to determine the level of education seekers' awareness of key professional skills.

Research results

Thus, to date, there is also no unified classification and hierarchy of skills, however, despite the differences in classifications, definitions and methodological approaches, the analysis of sources has shown that a modern specialist must possess a certain set of skills for long-term success in the employment market. Analyzing the various classifications of professional skills that will be relevant in the next decade (Calvo & Garcia, 2020; Kautz et al, 2014) it has been found that each of them has an almost identical set of components that make them up, only their places change. Some researchers put technological skills in the first positions, others put cognitive skills first, while still others consider as the main skills those viewed by others as

components of a particular skill. Thus, the classification consists of the same set of competencies, but in different modifications.

Therefore, it can be concluded that the number of modern skills is limited to two dozen, but their number is quite sufficient for researchers to justify their classifications and hierarchies with one or another significant change in the competency requirements.

In the matter of the skills hierarchy, the opinion of employers is important, emphasizing that today's employees need certain key skills. (Future of Jobs Report 2023) The Future of Jobs Report 2023 in Davos has defined the top 10 basic skills that modern employees should have and which will be relevant in the next decade. Skills from this list are classified by specificity: cognitive skills, self-efficacy skills, technological skills, and skills for working with others. The highest position in the list is occupied by the cognitive skills - analytical thinking and creative thinking, in the top 10 they occupy the first and second positions. Self-efficacy skills: resilience and flexibility are ranked third, motivation and lifelong learning are ranked fourth and fifth, respectively, and self-efficacy skills such as dependability and attention to detail are ranked seventh. Technological skills in the ranking are represented by the skill of technological literacy, which occupies the sixth position. The skills of working with others close the list: the eighth position is occupied by empathy and active listening, while the ninth is occupied by leadership and social influence. The skill of quality control, which belongs to management skills is ranked tenth.

The analysis conducted by the World Economic Bank in 2017 "Skills for Ukraine" also analyzed employers' demand for skills in the domestic employment market (Del Carpio et al, 2017). Despite the fact that the study was conducted before the pandemic and military operations in our country, and accordingly, did not take into account the influence of these factors. At the same time, the skills that were relevant in the domestic employment market are correlated with modern requirements for the necessary qualities of employees. The study identified three groups of skills - cognitive, socio-emotional and technical. This study, among the cognitive skills identified as the most valuable in the professional market of Ukraine include the following: problem solving, sociability, creative and critical thinking, ability to learn, organization of working time. Among socio-emotional skills, domestic employers consider self-organization, stress resistance, ethics, teamwork, and achievement motivation to be the most important. If we combine these skills according to the usual characteristics, then they belong to two groups of soft and hard skills.

Analyzing the specified skills, it can be concluded that they have a wide application and are not limited to the narrow framework of one profession, and thus work for a long-term perspective. Possession of

skills from the specified list ultimately forms such a generalized characteristic as flexibility, the ability to find oneself in related professions, to retrain, to adapt to new demands and challenges brought about by modern technological changes. The main characteristic of most skills is the ability to master them during life. At the same time, the foundation for such an individual's ability is formed precisely by the education system.

In order to obtain data on the level of awareness of current professional skills for future employment among education seekers, the skills highlighted at the Forum in Davos have been chosen as a guideline. It should be taken into account that the specified top 10 skills are relevant precisely for those sectors of the economy for which vocational training takes place at UIPA. Although the list of necessary skills is relatively equal in different sectors of the economy, there are still certain differences. In the media entertainment and sports industry, empathy, active listening, dependability and attention to detail are valued twice as much as in other industries.

Determining the level of students' awareness of the importance of key skills for future self-realization in the professional market was carried out using a special questionnaire, which was compiled in the following way. The top 10 skills defined at the Davos forum, as mentioned above, were used as a benchmark. It was assumed that entrepreneurs who were interviewed to determine key skills were stakeholders who were interested in the availability of these skills among graduates of higher education institutions and thus directly influenced the education process, therefore their ranking of skills was more relevant than that of students. This gives reason to accept the rank sequences, constructed based on the results of the employers' survey, as optimal. According to the ranking indicators of the employers, a table of the optimal ranking distribution of the specified skills was made, which was presented to the students in the form of a questionnaire.

The following formula was used to analyze the survey results:

$$Y = \frac{\sum_{i=1}^{m} n_{1...N}}{m}$$

where Y is a rank index, m is the number of respondents, N is the number of ranks, n is the rank value.

To check the reliability of the studies, we were guided by the recommendations for sociological research (Vazhynskyi, 2016) changed the order of the answer options in each part of the questionnaire and conducted a repeat survey a few weeks after the previous one. Then the number of matches was compared according to

the data obtained for the first time and the second time. The reliability of the studies of each part of the questionnaire ranged from 79% to 83%. Such reliability meets the requirements of similar studies.

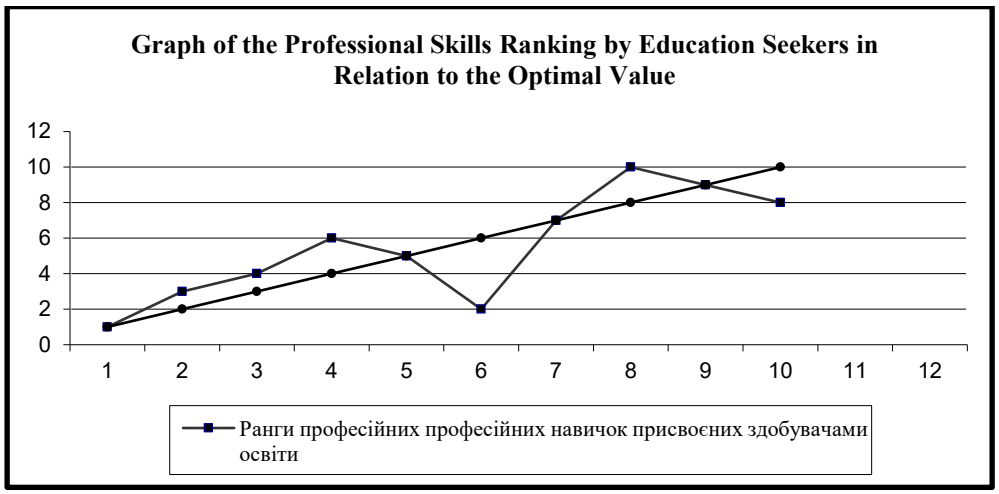
The research sample consisted of 130 students of the Ukrainian Engineering and Pedagogical Academy studying in the third and fourth years. Based on the purpose of the research, students studying in senior years have been selected, because the third- and fourth-year students have more formed professional competencies, and, accordingly, better formed ideas about their own profession. An additional factor that contributed to the selection of such an age sample for the survey is also the fact that a significant percentage of senior students already have work experience, and thus, have a certain understanding of employers' demands. The average age of the surveyed education seekers was 19.49 years. The data were collected through Google forms. After the first survey, the students received the results presented in Table 1 and Figure 1.

Top 10 skills	Rank	
	Optimal value	Value provided by students
1. Analytical thinking	1	1
2. Creative thinking (or creativity)	2	3
3. Resilience, stress tolerance and flexibility	3	4
4. Motivation and self-awareness	4	6
5. Curiosity and lifelong learning	5	5
6. Technological literacy	6	2
7. Dependability and attention to detail	7	7

8. Empathy and active listening	8	10
9. Leadership and social influence	9	9
10. Quality control	10	8

Table 1. Top Skills Students' Ranking Results

The results of the survey have been presented in comparison with the "optimal distribution". Reflecting the "optimal distribution" in this stacking order of values, straight lines are formed on the graphs, in relation to which the discrepancy and the direction of deviations from the optimal values, which have been obtained during the study of the respondents' answers, are visually presented.
Analyzing the results of the education seekers' survey, we can clearly see rank preferences, which show the greatest deviations in students' understanding of the place of modern professional skills at the time of the survey.



the ranks of professional skills assigned by the education seekers optimal rank values.

Fig. 1. Professional Skills Ranking by Education Seekers in Relation to the Optimal Value

The results of the ranking show that education seekers understand the importance of analytical thinking as a key professional skill that affects

their competitiveness. This skill was assigned the 1st rank by the students. This result shows that, in general, professional education forms an understanding of the importance and necessity of developing one's own analytical skills as one of the factors for achieving success and the ability to comprehensively solve various tasks and problems at the workplace.

Another important cognitive skill, "creative thinking (or creativity)" has been assigned only 3rd position by the students, which is the result of underestimation of the importance of such a skill by higher education, and, as a result, lack of understanding of the importance of this skill by students. Creative thinking, or creativity, has been constantly included in the top 10 skills, occupying the top positions of the rating, and is key for various industries that are transformed under the influence of new scientific inventions and new technologies. Creativity is considered not only as a special ability to implement and develop modern techniques and technologies, to independently find solutions when solving professional tasks, but also as the ability to work creatively, in particular, in relation to the creation of new objects of equipment and technologies (Future of Jobs Report, 2023; Calvo & Garcia, 2020; Del Carpio et al, 2017). This skill is one of those that directly affects the ability to adapt to changes in the workplace in the future.

Self-efficacy skills such as resilience, flexibility and mobility, motivation and self-awareness, curiosity and lifelong learning, dependability and attention to detail were ranked 4th, 6th, 5th and 7th respectively by students. It is significant that all self-efficacy skills, except for motivation and self-awareness, received values that are the same as the optimal or close to the optimal indicator. Education seekers gave the same value to lifelong learning as the optimal indicator, which is explained by the practical experience of students. As noted above, the majority of respondents in senior courses have some professional experience in performing certain functional duties at workplaces, which required them to quickly adapt to new professional conditions, master new technologies, improve their own knowledge and skills; to quickly change the type of work, perhaps even switching to another type of activity. This is a positive trend given that employers are emphasizing the importance of employees embracing a culture of lifelong learning as the life cycle of their skills shortens.

Such self-efficacy skill as "dependability and attention to details" according to the distribution by education seekers received the 7th position, and corresponds to the optimal distribution. The respondents understand employers' demands for high-quality and qualified performance of their work duties. This also applies to such a skill as " resilience, flexibility and mobility", which also received an indicator

close to optimal. It can be stated that the education seekers understand the impact of this skill on the ability to adapt, both to the requirements of the workplace and to the rapid transformations of the professional market.

At the same time, education seekers underestimate such a skill as "motivation and self-awareness", which indicates a number of problems that require correction from the professional education system. This skill, which occupies the fourth position according to the optimal rating, was given 6th place by students. The difference with the optimal value is two points. The efficiency of performing professional tasks is closely related to motivation, which is noted by employers. The presence of the motivation factor makes it possible to transform knowledge, skills and abilities into means of personal and professional growth. Therefore, it is important to develop an understanding of the relationship between such self-efficacy skills as "flexibility and mobility", "motivation and self-awareness", "curiosity and lifelong learning" during the course of higher education.

Respondents assigned 8th position to the proposed professional skill "empathy and active listening". This skill belongs to the skills of working with others. The difference relative to the optimal value by 2 points indicates an underestimation by students of the skills of working with others, which are basic for emotional intelligence and communicative competences. This skill is important in other areas as well, because it determines the direction and method of action not only in a specific profession, but also affects ways of solving career and life situations, the ability to cooperate with others. In today's professional environment, these skills are as important as the ability to communicate with others and explain tasks to them. That is, there is a certain gap between the demand for this skill among employers, and the understanding of the importance of this skill by education seekers.

At the same time, another skill of interaction with others "leadership and social influence" was distributed by the students according to the optimal value. Thus, the results have shown that during the formation of professional value orientations, it is necessary to consolidate in the minds of students the understanding of the importance of working with others, which can affect not only the employment and success of individuals, but also the company's activities in general. However, this is not an easy task for the higher education system, since the development of these skills is slower and depends more on individual characteristics of the personality than on technical skills (Trevelin et al, 2023).

At the same time, students somewhat overestimate the importance of technological skills; there is a bias in estimates. Education seekers gave this value the second position in contrast to the optimal value. As

businesses introduce advanced technology, tasks such as information and data processing are becoming increasingly automated, leading to a reshaping of labor markets and a change in the skills required to work (Krasnoshchok et al, 2023). Technical skills consequently, although included in the Top 10 list, but in the opinion of employers are significantly inferior to cognitive skills and self-efficacy skills, and in the optimal distribution occupy the sixth position.

Conclusions

Therefore, higher education faces the task of ensuring the formation of key skills in education seekers which would meet the modern needs of the rapidly transforming professional market. In order to achieve this goal, it is necessary to study the issue of education seekers' awareness of modern professional skills, which are represented by the key skills identified at the Davos Forum 2023. A survey of education seekers, conducted in order to identify the understanding of the importance of the specified skills, showed a gap between the optimal set of skills and the perception of them among education seekers. There is a shift in the preferences of education seekers towards technological skills, and at the same time insufficient awareness of the importance of so-called soft skills, which collectively constitute the sphere of skills necessary to achieve professional and life success and is an indicator of human capital. The findings support the need for purposeful development in the process of professional training of the key skills that employees need today in order to improve the conformity of education and training with the requirements of the professional market.

Issues regarding strategies for the development of modern professional skills by the education system, ways to tighten the links between the education system and the employment market need further research.

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THE IMPACT OF CREATIVITY ON EDUCATIONAL UNDERSTANDING

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Abstract: *This study investigates the ability of creativity to bring about significant change in the field of education. It suggests a new methodology that integrates the latest creativity research with teaching methods. Our research aims to create a strong theoretical framework to enable the successful integration of creative activities in education. We believe that creativity is a crucial factor in understanding and improving educational processes. The first part of the paper presents a theoretical framework that aims to clarify the interpretation and use of creativity concepts in the educational process. The study focuses on discovering and analyzing creative situations that can improve and facilitate the teaching and learning process. Using the theoretical*

framework, the study suggests an educational model adapted to the unique characteristics and individual needs of students. This study examines practical strategies for overcoming barriers, such as the importance of providing in-service training for teachers. Our study highlights the vital importance of creativity in reforming education and presents a theoretical and practical framework that can be used as a basis for creating more adaptable, inventive and personalized teaching methods that meet the demands of 21st century learners.

Keywords: creativity; education; methodology; innovation.

1. Introduction

The difficulties in establishing a clear definition of creativity
Defining creativity is challenging because it encompasses a wide range of forms and variations (Ainsworth, 1967, 1978, 1978; Galton, 1969; Gardner, 1998; Guilford, 1950, 1957; Terman, 1925, 1950; Torrance, 1963).
The transformation of creativity into a specific concept by using scientific methods from both monodisciplinary and multidisciplinary approaches. Rouquette (1973) presented two key principles of creativity: personal discovery and the production process (Kaminski et al., 1973).
The classical paradigm and Definition creativity

- Low enthusiasm for exploring creativity is a result of challenges in measuring and conducting scientific examination.
- The lack of a widely recognized definition and the presence of ambiguity around creativity.

Definitions and perspectives on creativity
The term "creativity" derives from the Latin word "creation" and has challenges in defining a definitive definition. Most academics agree that creative thinking is a universal skill (Fontao, 1997; Guilford, 1950). Guilford 's notion refers to the expression of the human spirit and the differentiation between convergent and divergent thinking (Guilford, 1950;). Stein's (1953) definition is extended to recognize the value of knowledge as a cognitive process for society (Stein, 1953). Taylor explores the notion that creativity encompasses a wide range of activities and interpretations that attempt to modify and rearrange an individual's mental frames, regardless of their rarity or frequency, but meaningful in a particular context (Taylor, 1971). Taylor's explanation of this phrase highlights the multitude of factors that play a role in the creative process, establishing a direct link between creativity and

problem-solving skills (Taylor, 1971). In a similar way, other scientists link creativity to the problem-solving process. In his work published in 1980, Vervalin defines creativity as the systematic process of detecting a problem in the mind, which could involve activities such as imagination, visualization, conjecture, meditation and contemplation. - This process is then followed by the generation or discovery of a new idea, concept, notion or schema (Vervalin, 1980).

In this preliminary investigation of creativity, our main objective is to enhance and perfect creative skills while maintaining a forward-looking perspective on importance creativity in the field of education. Extensive studies have continually demonstrated that creativity is an inherent attribute that exists in individuals to varying degrees and manifests in a wide range of industries and disciplines. According to Bernal Vázquez (2000), each individual possesses an inherent capacity for creativity, which should be encouraged and cultivated through education (Vázquez, 2000). This process should extend beyond conventional academic boundaries to include the involvement of both the family and society at large. It is widely recognized that each individual has an inherent creative capacity that allows them to engage in a range of activities that could improve their lives (Araya, 2005; Holm-Hadulla, 2013; Richards, 2007; Runco, 2010). Our objective is to give priority to Glăveanu 's (2014) perspective on creativity , which emphasizes the importance of the connections between the artist, his work of art, cultural values and his community(Glăveanu, 2014). Creativity, in this context, refers to the generation of new products, information and methodologies adapted to the specific requirements of a community or circumstance. Glăveanu expands the concept of creativity to include more than just the act of generating new subjects and things (Glăveanu, 2014). He incorporates the inventive concepts underlying these creations within current cultural tools. His concept of creativity is characterized by distinctiveness, particularity and the ability to conform to different cultural and historical settings. Neuroeducation, as defined by Mora (2007), is a discipline that examines how the brain and environment interact in the educational setting. It emphasizes the need to adapt teaching and learning methods to meet the demands of the modern period (Mora et al., 2007). This approach encourages a collaborative effort between neuroscientists, psychologists, educators, social educators, and communication specialists to address the various factors that affect education. These factors include emotions, empathy, curiosity, attention, creativity, entrepreneurship, memory and learning processes, circadian rhythms, and interaction with nature. Driven by advances in neuroscience, this new perspective emphasizes the need for educational institutions to undertake the necessary adjustments and reforms to innovate and

improve the educational system. These changes should reflect the significant impact on personal development and the progress of modern societies. Robinson (2012) discusses the importance of recognizing the specific 'component' as a means of improving creative skills (Robinson, 2012). This element refers to the intersection of an individual's innate abilities and personal inclinations. The experience of being immersed in the element goes beyond simple happiness or contentment, beyond the typical cases of pleasure. Discovering one's own element promotes a deep connection with the individual's core essence, their aspirations and their overall being, providing a broader perspective on people's personal capabilities and achievements (Robinson, 2012).

2. Research methodology

2.1. *Objectives and integrated approach:*

Research objectives:

- Promoting essential methods to promote creativity in education.
- Developing a new theoretical framework for revitalizing the creative education approach.

Specific objectives:

- ✓ Recognizing and harnessing the creative potential of students, teachers and the educational community.
- ✓ Emphasizing the importance of the social and cultural environment in education schoolboy
- ✓ Improving educational opportunities that foster the growth of creativity.
- ✓ Exploring contemporary educational advances and resources for the good of education.
- ✓ Identifying and solving obstacles to promoting creativity through training.

2.2. Research design:

The structure of our research consists of three primary and interconnected stages:

- Theoretical Stage One: An in-depth examination of the existing literature on creativity, spanning its historical roots to the current state of knowledge.
- Stage two: Context analysis refers to examining how social and cultural factors influence creative education.
- Stage three: Evaluation and discussion: Analysis of inventive pedagogical approaches that can encourage creativity, followed by making judgments about the objectives pursued.

3. Teaching staff

3.1 Proposed creative methodologies and resources

After establishing the theoretical framework and educational circumstances, it is essential to determine the appropriate educational course of action. What techniques should be used in teaching and learning to facilitate the development of students' talents, including creativity, and how can the educational process itself be made more creative? This approach requires a new examination of education through the lens of creativity, forcing us to reconsider active approaches currently used in educational settings.

We do not intend to provide a comprehensive analysis or a compilation of different creativity stimulation programs, such as specific programs such as "curricular" and "transversal" programs (Sepúlveda Muñoz, 1994), the "Instrumental Enrichment Program" (Feuerstein et al., 1988) , the Harvard Intelligence Project. None of the component theories of creativity, such as Urban (1991), Investment Theory (Sternberg & Lubart , 1993), and the Theoretical Model of Productive Thinking (Treffinger et al., 1990), are included(Sternberg & Lubart, 1993; Treffinger, 1990; Urban, 1991). We do not intend to compile a list of resources or approaches for fostering creativity. Our aim is to highlight the importance of innovative educational approaches that uphold the fundamental rights of individuals and facilitate their holistic growth. Active approaches refer to changes made to teaching practices to adapt to the current educational landscape. Active methodologies facilitate continuous learning through trial and error, enabling reflection and flexible learning processes that can meet the diverse needs of students (Carceller, 2019).

Today, although there have been improvements in teaching and learning approaches, traditional textbook-based exposure methods are still commonly used. The student engages in active listening and reproduces information with varying degrees of proficiency. He is expected only to reproduce the system without any additional requirements. According to Wallace et al. (2016), students' lack of engagement or detachment from the taught subject is the result of their passive role in the classroom (Wallace et al., 2016). However, it is important to emphasize the need for the student to be actively involved and take a leadership role in the teaching and learning process, as emphasized by (March, 2006). According to him, the ideal student profile should possess the following qualities: be an active learner, demonstrate autonomy, use strategic thinking, engage in reflection, collaborate with others and take responsibility for their own learning (March, 2006). Thus, active approaches aim at using the student's knowledge in practical and familiar situations, favoring the growth of autonomy, competence and, ultimately, creativity. Faculty serve as an intermediary for learning, providing tutoring , guidance and

support (Toledo & Valverde, 2016).
Education that comes from creativity is based on its ability to bring about change, allowing students to cultivate their skills and apply them to improve the community.
Active techniques involve teaching processes where students use their knowledge in real circumstances and implement their learning in their everyday activities. These methods enhance the process of acquiring knowledge and develop a competent student by encouraging critical, creative and reflective thinking.

4. Conclusions

Today, there is a growing recognition of the importance of creativity for both individual growth and societal progress. Being able to adapt to the ever-evolving needs of the world is critical to career success.
This study emphasizes that every individual possesses the capacity for creativity, with variations between individuals, and it can be cultivated through appropriate education. To encourage creativity, it is essential to establish an educational and cultural structure that upholds the rights of individuals, facilitates the fulfillment of their needs and encourages innovative efforts. The importance of the environment is emphasized by its influence on the use of creative capacities.
Educational techniques should include active teaching approaches that promote student engagement and allow students to explore, exercise autonomy, and pursue their individual passions to discover their distinctive "thing." Environments that foster a culture of tolerance for mistakes and embracing failure are essential because they not only aid in the acquisition of knowledge, but also encourage the exploration of new paths and the cultivation of innovation.
The introduction of creative education means the initiation of a significant reform of the educational system and society as a whole. This entails implementing creative educational practices that incorporate creativity as a fundamental aspect of education, promoting a worldview that recognizes and nurtures creativity as a vital skill for a rewarding and dynamic existence.

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THE ROLE OF DRAMATIC PADAGOGY IN DEVELOPING TRANSVERSAL COMPETENCE ON STUDENTS

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Abstract: *„The old didactic theatre must be replaced by, let us say, pedagogical." (Augusto Boal). Lifelong learning education can be ensured also with the dramatic pedagogy learning curricula due to the specific of student's competences that can be improved and valued in formal and nonformal learning on promoting skills, attitudes a key-competences, social and positive values. The key-competences frame has a transversality characteristic but the most important is to identify the life key-competences you need to ensure, along with the selected methods used to achieve them. In this study we propose dramatic pedagogy methods to develop the acquisition of knowledges and skills of students and also to highlight their benefits thru drama teaching. The impact dramatization curricula in formal learning context encourages all students to participate to activities using their creativity or to express their personalities in solving problems, to express their imagination and most off all to be authentic. All teachers can use on their learning context planning such as dramatization, as a significant element of their teaching according with the used drama methods. Dramatization as an art form involves cohesion and mutual cooperation between students and teachers. It encourages students to think positively about themselves, to learn and*

believe in their own growing abilities. Dramatization as an educational method, through integrated approaches of learning contributes permanently to adapt and to design curriculum for students need of learning and to increases the perspective of expansion knowledges outside the curriculum, to free movement and to research on the worldwide science.

Keywords: *dramatic pedagogy; storytelling; formal and nonformal education; lifelong learning key competences.*

Introduction

The 20th-21st centuries, based on specialized literature, are representative of the directing schools, more precisely by the new trends manifested in the field of acting studies that contributed to the influence exerted by the dramatic art on pedagogy with theoretical and practical arguments, making it possible to revive that force of attraction visible to the public in human history since ancient times.

According to Lehmann, in order for the theater to find and keep its place in the world of developed environments, it must become the place of "real meetings", where "aesthetically structured life and that of everyday life intersect".

The action of the "here and now" type, the moments of life spent in the theater are experienced together by spectators and actors (Lehmann, 2010, 10). Likewise, Brook, speaking about the immediate theater proposed by him, also highlights the characteristic of the theater to manifest itself in the present.

The uniqueness of the characteristic is the fact that it can offer collective satisfactions, which cannot be found either in movies or in everyday life, at home or on the street, at the psychologist or in the circles of friends (Brook, 2008, 111-112).

The new theatrical trends have greatly influenced the change in the methods used in the training of actors and the development of the actor's pedagogy. According to Balme, the actor's pedagogy is the field of theatrology in which several general research fields are found, related to the dramatic art, to the theater, respectively those related to the pedagogy of the actor researching the efforts to reform the theater. Thus, the methods and theories related to actor training in the 20th century are extremely eclectic, they combine tradition and the new, personal ideas (Balme, 2008, 27).

Balme also highlights three decisive theoretical trends regarding the change in the relationship between the actor and the role. These are represented by Stanislavski's theory based on experience and involvement (involvement), the theory of "detachment" proposed by Brecht and Mejerhold (detachment) and Grotowski's theory of "self-

renunciation" (Balme, 2008, 22).
Balme also emphasizes that the application of dramatic pedagogy can be noticed in other fields, not specific to dramatic art, especially in the field of applied theater and applied drama, where the central goal is not the acquisition of professional acting virtuosity, but rather the development of the capacity for integration and awareness.
In his vision, the theater represents the combination of capacities physical and cognitive, and interpretation is the basic element of many types of activities that develop team spirit (Balme, 2008, 27-28), Konstantin Stanislavski emphasizes creativity, imagination, communication, ability to concentrate, relax, knowledge and sensory recognition, affective memory and Jacques Copeau brings simplicity, sincerity, naturalness to the center spontaneity, liveliness and the annihilation of inhibitions. Bertolt Brecht privileges curiosity, observation, teamwork, interactivity, empathy and critical attitude.
So, the acquisition of lifelong learning skills represent a right for students regardless of background, abilities and age criteria. The behavior of a child or student reflects on different factors as family, school and wider community, also individual factors that include knowledge, skills, attitudes and characteristics of the person. The role of lifelong learning skills is to contribute to the personal emotional and social development of children and to ensure their physical, mental and social well-being. Lifelong learning education thru dramatic pedagogy contributes in promoting positive values and creates real opportunities for applying skills along with specific learning needs of students.
Also, International institutes as the World Health Organization promotes as well important values: communication competences, decision-making skills, personal competences, self-awareness, creative thinking, socio-emotional competences, critical thinking, empathy, self-reflexive attitudes and behaviors, coping with stress, interpersonal and problem-solving skills. Along with these recommended key life skills for master also the most important issues are the use of adequate methods to achieve academic competences of students.
Teaching approaches has to include active participating methods, also cooperative and experimental methods to allow students to learn through their own life experience and practices activities and to play an active role in the educational process.
The specific methods used in the classroom for students to acquire life log learning key-competences include group discussion, storytelling techniques and story analysis, demonstrations, simulations situations, drawing activities, role playing activities and dramatization. This paper will insist on the dramatization method and the benefits of its use in teaching for the purpose of ensuring lifelong skills acquisition of students.

The influence of dramatic art on pedagogy is extremely complex and it can be found in one form or another in almost all fields and at all levels of educational activities.

Dramatization Method in Teaching Process

Dramatization as an educational method applied in teaching process, students don`t have to act or to interpretate a perfect dramatization but the goal is to act short dramatic improvisations for acquiring specific skills and abilities, knowledge to be applied in real issues and to develop critical thinking, to achieve self-confidence and perception to different problem-solving situations.

The dramatization curricula encourage students to be creative, to express their personalities, to express their imagination and to act originality in solving - problems. So, through direct experience of drama acting there is the possibility to transform characters so students will express their creative potential individuality. The role of drama acting is to interpretate dramatical activities towards actor`s experience and it is realized using dramatical methods and also with theater techniques improvisation. This perspective of drama education has the main objective to prepare for the real performance. It is considered really to be creation and improvisation, rather than performance and exhibition.

The natural creative potential of everyone is a real potential that can disappear, if it isn't educated or stimulated. Creativity manifestations shows the potentiality and the uniqueness of every person and represent the ability to perceive facts in a different perspective, to identify a problem when the others are not aware of, to find a solution in a new, original and effective way. Each teacher can use creative dramatization, as part of his work as one of the methods used. It is an art form that involves cooperation and mutual cooperation between student-student, student-teacher and teacher-student. It suggests that students generally learn to think positively about themselves and to believe in their growing abilities.

Theatrical pedagogy belonging to the category of applied theater and drama achieves the connection between theater and institutional education, being argued through several theories related to personality development, theories about play, pedagogy based on constructivist pedagogy, experiential learning, flow theory or Erving Goffman's theory.

Elements of dramatic technique in various forms are present in the history of language teaching and have the role of effective tools in practicing games that develop verbal, non-verbal communication and that prepare individuals for lifelong learning and professional

development for everyone. In order to study and practice a specialized language in professional development, it is necessary to use activities based on elements of dramatic technique - games of role, simulations, dramatic art, improvisational theatre.

The benefits of using dramatization in the teaching process include: expression context of the student feelings, increasing self-esteem, confidence and trust thru facial expressions mime or body movements, involving specific abilities, attitudes and skills, offering active participation in teaching process to explore to act actively and creative an unknown approach curriculum to solve problems to develop creative and artistic skills and to assure responsibility and sense of learning community.

Personality development, the formation of the skills necessary for lifelong learning also include encouragement, the development of the attitude for communication, self-expression, spontaneity, playful spirit, practicing the game, developing creativity and emphasizing self-confidence, creating physical and mental harmony, dispelling inhibitions, increasing concentration and self-discipline, feeling empathy, developing critical thinking strategies, developing memory, affective memory, showing mutual trust and cooperation.

We emphasize that the skills developed through dramatic methods are useful and necessary in any life situations, having a universal character and ensure the development of various personal competences (affective awareness, self-confidence, self-control, trust, adaptability, innovative predisposition, initiative, optimism), social competences (empathy, charity, tolerance, cooperation, effective communication, conflict resolution, openness, team spirit).

All experience accumulated in the field of personality development, experiments and results related to this activity, the techniques and exercises developed for this purpose, in the work of some theater people - for example Viola Spolin (1963), Keith Johnstone (1989), Tom Salinsky and Deborah Frances-White (2010) believe that all they can also be applied in other fields and activities with other target groups, especially with a pedagogical purpose, but even therapeutic. Specialists from other fields - pedagogues, psychologists, doctors, sociologists - recognized the potential hidden in the techniques, exercises, games used in the training of actors.

Studying the actor's pedagogy, it is observed that in the preparation of the actor, role play represents a form of central activity, the idea emphasized by several acting teachers: Jacques Copeau (Copeau in Rudlin, 2010, 59), Deborah Frances-White and Tom Salinsky (2010), Viola Spolin (1963), Peter Brook (2008), Joan Littlewood (Littlewood in Baker, 2010, 131), Keith Johnstone (1989), Robert Cohen (2007).

By means of theater and applied drama, new relationships and

interdisciplinary interferences between different fields have been and are being born, depending on social learning needs, thus opening up new ways and possibilities for lifelong learning achieving competencies.

Dramatization method applied for developing transversal competences

The trends of modeling the new type of spectator-performer, student-performer relationship emphasizes with the use of theater for pedagogical purposes, and according to Ackroyd, these functions of the theater are not actual, but we notice the applied theater and applied drama itself as new ones.

Joan Littlewood's ambitious project, entitled" The Fun Palace", can be considered also an anticipation of applied theater and drama. Littlewood therefore recognized the latent potential of drama, generating social changes and personality development and psychological satisfaction in role-playing games and can develop a critical awareness in relation to reality.

Due to its objectives, performance theater can be considered among the forerunners of theater and applied drama as well, trying to materialize modeling, influencing the viewer, encouraging active participation. Students on their interpretating and performing drama or playing role they have to be aware of specific element as the scene (created or spontaneous scene space to performed dramatization or playing role); a paraphernalia selection made in collaboration also original and creative as well; the group of students acting as motivated an willing actors, and a facilitator-teacher to observe and coordinate the students drama acting.

The real advantages upon students on interpretating drama will contribute on developing on key-competencies, personal and professional competencies ensuring also their transverse characteristic. Acting drama students will perform on applying the new experience in new context if they acquired skills should help them in learning new life learning experiences.

Dramatic pedagogy methods will offer to all actors the perspective of a fantasy worlds a real world to be aware of, to express their thoughts, ideas feelings and actions with each other thru communication skills; to act different role, different types of behaviors and personality-types using critical thinking. Also, students will be able to respond to social demands; to be prepared for social and professional life; to involves in the activity of continuous learning and self-assessment of student's competences; to allow the utilization of the entire educational experience on the development of the curriculum; to act the role of a partner in education in the process of teaching, learning and evaluation

process.
Dramatic pedagogy therefore develops free thinking and action, creativity applied in the formation of the child's personality. The characteristic of this method is the game, the formation of life skills based on lived impressions; dramatic and complex dramatic techniques are the forms of organizing the activity within this program and these methods have the advantage of activating the child from a cognitive, affective and action point of view, putting him in a situation to interact with others. Dramatic pedagogy offers also the possibility of individualizing the learning experience and the free expression of personality.
Drama techniques and strategies are successful adapted in working with students and always have finalities thru dramatization, drama activities, storytelling, role-play, fantasy drama, mime and pantomime theatre improvisation, forum theater, hot chair, vocal thinks path of conscience, character of the wall, frozen images, etc. Specific instruments used in dramatization method will exercise voice, creativity, imagination, teamwork, active-concentration and movement.
Dramatization acting implies emotional and also intellectual impact upon the participants and also upon the audience. Its influence is associated with „a mirror" to see and discover ourselves, to understand human motivation and behaviors as well and to extend our learning perspective through stories that picture our life differently social and cultural periods. (Network, 2012)

Conclusion

School must be inspiring and teaching process should ensure learning and develop competencies for school success and in real life. Dramatization, as a pedagogical method, can provide the suitable learning context in different scientific subjects, or concepts, on learning language and developing communication skills, developing mathematics abilities, social sciences skills, social interactivity and to stimulate creativity.
Another real benefits and skills for the comprehensive development of students using of the dramatization method can be mentioned on the following: increasing self-confidence of students that will develop through dramatization method that will develop their future personal development; promoting imagination and creativity, known as an original content for dramatization, even Albert Einstein according that: "imagination is more important than knowledge."
Cultivating empathy by making characters types and interpretating different roles and acting new context situations and different cultures to promote tolerance with others. Cooperation activities dramatization offers opportunities to creative abilities and skills to all. The

dramatization cooperative process involves collaborating teamwork, interactivity, open discussion and negotiation skills that all the participants will learn to listen to cooperate and to accept others input and opinions.

Drama plays ensures concentration in exercises and role playing interpretating in front of class or in public so students will develop their movement and voice, their thoughts and will maintain attention to coordinate the play role and to interpretate the leader role each one of them.

Communication competence will improve thru language skills that are in the center of each dramatization act or art dramatization that facilitate understanding others background and believes. Creative dramatization and improvisation theatre is encouraging communications and non-verbal feelings and ideas. It will also improve the voice, the words articulation and persuasive speech too. Observation and listening skills are also developed through playing dramatic exercises and improvisation.

Another challenge for improving student`s perception world-wide context is developing creativity in solving problems thru drama research and improvisation activities to express better their expectations, their emotions, dreams that otherwise can`t be express. Students thru drama acting have the opportunities to interpretate and to be someone else exploring his new role and to aspect solutions and different options relating with real life problems. The educational environment in a safe one for students in which their actions and discussions consequences are not taking any risk at all as in the "real" life. This secure educational learning environment enables conflicts problems, and it leads to find solutions to make proposes and tests solutions that is most important consideration for the dramatization existence.

Drama acting also express humor, for expressing emotions without any fear of any consequences that will reduce stress and even aggression and will promote better social behavior and relaxation that is important to increase students physical and emotional reactions.

The process of creative dramatization, by moving from idea through action involves self-discipline, trust, physical development, social conscious thru exercises, social interaction between members to gain thrust in personal values, to upgrade the flexibility, to create improved movements of self-control and self-esteem of the students.

Creating positive attitudes and social values thru dramatization implies consciously or even unconsciously students to explore how their beliefs and views or beliefs will match or not with attitudes and beliefs of other students or teachers as facilitators.

Another dimension of dramatizations is esthetic value that is cultivated

with essential dramatic and educational theatrical tools that can achieve considerable attitude thru art forms to confirm their identification and their understanding and self-reflective attitudes. So, teachers are directly responsible for growing and increasing education students generations who will cultivate culture and science by reading books and cultivating theatre.

Dramatic pedagogy values dramatization as one of the educational methods through an integrated approach to learning, but also through transversal curricular models and permanently contributes to the adaptation of the curriculum in favor of the learning needs of students and increases the need to expand knowledge and train transversal skills outside the curriculum, through a non-formal approach to education and through scientific research.

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