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Intervention Strategies in Language Development at Preschool Age

Făt Silvia, Pânișoară Georgeta, Sandu Cristina, Doru Vlad Popovici

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Research article

Intervention Strategies in Language Development at Preschool Age

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Abstract

The article presents some focus-group results regarding the efficiency of practices in the language development at the preschool age, in order to discover the most advantageous strategies for valorizing them. The language is an essential tool of children's development which provides learning opportunities for communication and interpersonal relationships. In an attempt to describe how teachers usually intervene, the structured discussion has shown the following: the most common difficulties of children in language-centered activity, the specialized support that experts can offer in such situations, the impact of verbal behavior on the socialization in kindergarten, the treatment way of these errors by appropriate teaching methods. The game is highlighted as the most effective method of reducing vulnerable verbal behaviors in its variant as an active group method. The technology integration in language development is a popular trend in the education and language therapy. As it emerges from the discussion, teachers need more resources in addressing speech difficulties, referring in particular to digital resources. Interactive platforms such as TIMLOGORO would be extremely useful tools in the specialist intervention with which the teachers collaborate.

Keywords:

Communication
Language development
Intervention strategies
Digital resources

Zusammenfasung

Der Artikel präsentiert einige Fokus-Gruppe Ergebnisse in Bezug auf die Effizienz der Praktiken in der sprachlichen Entwicklung im Vorschulalter, um die vorteilhaftesten Strategien für die Bewertung ihrer zu entdecken. Die Sprache ist ein wesentliches Instrument der Entwicklung der Kinder, das Lernmöglichkeiten für Kommunikation und zwischenmenschliche Beziehungen bietet. In einem Versuch zu beschreiben, wie Lehrer in der Regel eingreifen, hat die strukturierte Diskussion folgendes gezeigt: die häufigsten Schwierigkeiten der Kinder in der sprachzentrierten Tätigkeit, die spezialisierte Unterstützung, die Experten in solchen Situationen bieten können, die Auswirkungen des verbalen Verhaltens auf die Sozialisation in Kindergarten, die Behandlungsweise dieser Fehler durch entsprechende Lehrmethoden. Das Spiel wird als die effektivste Methode zur Verringerung der anfälligen verbalen Verhaltensweisen in seiner Variante als eine aktive Gruppe Methode hervorgehoben. Die Technologieintegration in der Sprachentwicklung ist ein populärer Trend in der Bildungs- und Sprachtherapie. Wie aus der Diskussion hervorgeht, benötigen die Lehrer mehr Ressourcen bei der Bewältigung von Sprachschwierigkeiten und beziehen sich insbesondere auf digitale Ressourcen. Interaktive Plattformen wie TIMLOGORO wären äußerst nützliche Werkzeuge in der Fachintervention, mit denen die Lehrer zusammenarbeiten.

Schlüsselworte:

Kommunikation
Sprachentwicklung
Interventionsstrategien,
Digitale Ressourcen

1. Introduction

The communication is an essential feature of human life. This is the key of guiding people in the formation and the development of interpersonal relationships and permanently influencing emotional reactions and thoughts of individuals, so being a necessary process of social life (Gokyer, 2015). The communication in the educational area is considered one of the determinants of the personal and professional development of students. It acts as a mediator between us and others, but also as a mentor who supervises the actions. The relationship between the two educational actors or groups involved in the teaching process that interacts, exchanges, sends and receives meaningful information, leads to the establishment of essential features for the efficiency of the communication process.

The language is considered "a structured system of symbols used to communicate meanings" (Floyd, 2013, p.167). It is characterized by the following features: symbolic, arbitrary, governed by rules, various meanings, in close connection with context and culture. This is a verbal behaviour of the individual, including the following: speak, listen, share ideas, retaining audio messages, reproducing and translating them. Wackenheim (apud Popa, 2006, p. 42) speaks about the following functions of language: the function of integration of the individual in his environment, the function of revealing and self-disclosure, the function of valorisation, the function of regulating the behaviour of others, the therapeutic function. When talking about the expressivity of language, we distinguish between internal language in speech and external language through speech. The expression of language involves both logical learning and creative learning. In order to express significant meanings, a harmonious blend between content and intonation or accent is required.

Interaction with teachers provides access to vocabulary enrichment and interaction in the school environment, engages students in interactive reading, all of which are important activities and support for the development of children's language at pre-school age. (Berk, 2013)

2. Characteristics of language development

The developing children's language is a complex process that differs from one child to another. However, there are many common features of language development among children from the same society or the same language but also among many children who speaks different languages. The linguistic development of a child is a divergent, dynamic, flexible process, depending on many internal and external factors. However, there are some features that can be recognized during development. The language begins to develop from the child's birth. At first it is only the acoustic perception of one's speech and certain abilities of the organs of speech. There are several phases of language development that can be identified in the child's speech.

Most children's linguistic abilities are formed in a short period of time (Edwards and Beckman, 2008). In the early years of life, they are rapidly advancing from the use of simple symbols and rudimentary syllables of early vocal play to the use of longer words and pronunciations that contain recognized forms of most sounds in their native language (Edwards and Beckman, 2008). They hear and use language in the continuous social interactions of daily experiences. They are familiar with oral and written language over time and with a rich language environment, such as the variety of words used in extensive conversations, stories and interesting explanations (Snow et al., 1998).

The development of language is closely related to the child's social relationships and early experiences (Van Scoter, 2008). According to Van Scoter (2008), the game offers important opportunities to experience language in interactive activities such as reading stories, communication games and writing, all of which have an important influence on the development of oral and written language.

There is a pre-linguistic and linguistic phase (Trajkovskaa et al., 2010) of the development of a child's language. When the baby is born, the child begins to cry. This is the first step of the pre-linguistic phase. This means that the child welcomes the outside world. It also proves it breathes. Subsequently, the new-born child uses his cry to send a message to the people who deals with him. At this stage, the sound the child produces can be related to a certain emotional condition that he has. For example, if the child is hungry, he would cry, if he / she is sad, he / she also cries, but otherwise, if the child is happy and satisfied then he or she would make specific sounds that would serve as indicators for his / her emotional state.

Vid Pecjak presents these developmental phases of the child's discourse: 1. The cry that begins when the child opens its mouth and allows air to pass through the respiratory system; 2. Vocalization, which means articulation of vocals; 3. The expansion of sounds when the child is able to do; 4. the contraction of sounds when certain sounds that exist in the discourse of the child no longer exist, especially those sounds that cannot be recognized in the discourse of the parents; 5. the goo- goo refers to one sound to another; 6. to real words when the child begins to use conscious speech.

When approaching pre-school, a spectacular evolution of language takes place. At the age of 5, most children manage to speak fairly and grammatically, with a high ability to adapt to new situations. They start to create new words based on imitation of verbal models of parents or kindergarten. The preschool is able to communicate everything he wants and builds more and more longer and complex sentences (Cretu, 2009).

During the 6-10 years old, the most important evolution in the language area of development takes place: the writing-reading assimilation. Through this acquisition - a vocabulary enrichment and a more demanding regulation of speech are achieved by imposing the grammar requirements of writing and reading (Cretu, 2009).

Intervention strategies for preschoolers are various. The technology is an element to be taken into account to ensure the efficiency of learning and assimilation of information. The impact of new technologies on inter-human relationships is significant in social terms, providing new ways of socializing and sharing information. For children, language is the psychological process through which they communicate and interact with family, teachers and colleagues. The laptops, tablets or interactive tablets are modern means of development that children increasingly prefer to interact with; so this contributes to the formation and development of language. Stimulating the interest and involvement of young learners, the possibility of responding to the presented materials, the possibility for children to study at their own pace, the stimulation of communication and the development of language are indicators that can be achieved by accessing the technology by the beneficiaries, thus creating substantial improvements in the development and correction of speech through a single machine - the computer (Dina, Ciornei, 2012).

Basic reading skills are probably of the most important skills in providing information and ideas in our culture. The reading skills are essential for all types of learning in school and for the development of productive thinking skills (Saunders, 2007). Reading is an active process that should be acquired at an early age of learning (Zainudin & Yahya, 2006). Developing language to preschools children involves the use of several activities: children's stories, parents' moral experience, children's games, the quality and autonomy of their personal experiences. The time that parents and children spend together is very important. Therefore, the use of story books and leisure play are particularly important tools. (Mei-Ju et. al, 2014).

To develop language, children need to be presented as many words as possible in order to develop a rich understanding of their meaning and use. Teachers should introduce interesting and new words in the activities so that children can learn from each class activity (McGee, Richgels, 2003).

The teachers involved in the training and development of pre-school language have to fulfil certain competences: openness and desire to engage in concrete lifelong learning activities, predominance of the need for curiosity, interest of the student showing understanding the meaning of the message. Increased interest in achieving learning outcomes, positive and autonomous attitude, the desire to succeed, and the accumulation of as much

information as possible to help the accelerated development of child language. Intervention strategies must be implemented quickly and appropriately to the needs of the child, to ensure the best opportunity for success in the educational environment and social interactions. Specialists must work with parents to provide a solid foundation so that children are able to get an optimal integration into school (Wright, 2010).

3. Research methodology

- *Groups Characteristics:* two focus groups sessions were organised in this research project, each group having 6 participants. The members are preschool teachers from Bucharest having at least 2 years and maximum 10 years of experience in the public system of education. The recruitment of the participants was done on a voluntary basis by the moderator, according to two selection criteria: didactic career and pre-school education experience.
- *The aim* of the focus group is to provide information on teacher's intervention on children in some specific cases of speech difficulties.
- *Focus group objectives*: to list the most common difficulties that teachers encounter in language education; to identify the most frequent children's speech difficulties; to describe the family involvement in the case of children with speech difficulties; to list optimal ways of intervention, specific to language education.
- *Preparation of interview*: each focus group session was preceded by the presentation of the TIMLOGORO project. In the TIMLOGORO project, it is planned that an interactive platform for language therapy will be created. We want to estimate among practitioners invited to the discussion how extended is a possible need for such a language development tool. So, another goal of the focus group is to assess the needs of the practitioners for new products dedicated to language education. The interview guide is semi-structured around few themes.
- *Themes discussed*: 1. aspects of the verbal behaviour of children with speech difficulties; 2. children's socialization methods; 3. technology use in classroom; 4. intervention strategies centred on language development.
- *Introduction:* The rules of the discussion are presented by the moderator to the participants (no interest for consensus in opinion; any opinion is valued; everyone has to participate). The moderator launches the main topic (*language development strategies at pre-school level*) and subtopics (themes mentioned above). The discussion is strongly focused on the teacher's intervention in the management of speech difficulties at pre-school age. At the end of the two FG actions, the moderator tries to appreciate the future impact of the overall discussion.
- *Duration and location*: 90 minutes, Faculty of Psychology and Sciences of Education, University of Bucharest.

4. Results

The specialists and teachers considers that, at the final of kindergarten, the child should have the best abilities in: perceiving and accurately pronouncing and sounding all sounds and groups of the Romanian language, integrated into words; finding sounds and groups of sounds in different positions in the structure of the word; enhance the ability to separate words in syllables and syllables in sounds; enriching the active and passive vocabulary of children; explaining the meaning of words; stimulating children's creativity in oral expression.

4.1. Speech deficiencies in preschool aged children

All focus group participants agree that *the pronunciation* of the little child is far for being perfect. In teacher opinion, and according to their experience, the most common difficulties encountered by their children are:

- Teachers noticed that in the first few weeks, children who came directly from the family provided *monosyllabic responses*. At the exercises which are focused on children's ability to separate words in syllables, it is found that only a few children correctly split the words into syllables, the rest having difficulties especially in the monosyllabic words. Usually, they tend to divide this kind of word into two syllables.
- The *difficulty of hearing* is another issue due to the fact that there are many fundamental sounds and their variants. The exercises used by teachers have a wide variety. As a general rule, teachers use shorter words (1-2-3 syllables), with a low phonetic body - a particularity of oral communication. This precedes written communication which is much more elaborate than the oral one.
- A frequent and visible difficulty is related to the correct *pronunciation of consonants*. Many children still do not differentiate well r and l and s, z, and j. For this reason, omission, substitution and inversion often occur in speech. Of the substitution cases (more frequent at pre-school age) are the following: the sounds s and j are usually replaced with s and z; S and z with t and d; R is sometimes replaced with L.
- Teachers observed that usually, a large number of children learn how to develop sentences by *using all the parts of the speech*. Example: If at the beginning of kindergarten, the children made rather poor sentences in words („The girl sings."), in the end of kindergarten, the other parts of speech: („The little girl sings a lovely song.").
- In many games, the children had to make sentences after various images. If at the initial stages of the games the children were able to make simple sentences, up to 3 words. During activities, teachers noticed that most pre-schoolers know the meaning of words used in their dialogue, but each has a different understanding of the meaning of some words. After their training in vocabulary with exercises and games, they manage to gain self-control in expressive language.

According to FG participants, majority of abilities are developed due the systematic intervention of teachers. On this occasion, they express an intensive need to have a better support from the children's parents.

In terms of motivation for learning, participants did not notice a low motivation for these children, but a low level of self-esteem very prominent. That is why the success of the relationship with the child depends on how the teacher stimulates the child to participate in daily activities. They speak about a greater need for

these children to be encouraged for any progress they have made. Mutual confidence is a feeling often invoked as the main feature of the interaction with these children.

4.2. Social issues in preschool aged children

The kindergarten attendance is a major issue for all teachers. Regarding this, the absence is usually objectively motivated, related to the younger children's health problems (in the first year of kindergarten). We mentioned earlier that some children encounter difficulties in pronouncing sounds and words, in finding singular or plural form of nouns, and in making simple sentences. Analysing the teachers' answers, these difficulties arise as a result of the fact that they have not regularly attended the kindergarten in the previous year. Sometimes, they are younger than their colleagues, having a poor experience or an improper family climate for acquiring a correct speech.

Teachers observed that children with a high rate of participation have a good quality of communication and dialogue, and *have an expressive language that exceeds the level of biological age.*

Usually, children who have socio-affective problems cannot express themselves correctly. In one or two cases, teachers mentioned that children lately diagnosed with some forms of mental retardation, follows a recovery program with specialists and speech therapists.

4.3. Teachers' difficulties

In the focus group discussions, it appears that every kindergarten has at least one child whose speech difficulties have a visible effect on the child's evolution.

The difficulties mentioned by teachers in working with these children are:

- All FG participants said that speech difficulties are prevented by specific actions in order to observe children's verbal behaviour and create ameliorative interventions. Thus, for the correction of speech impairments, the teacher - parents' collaboration ensures success. Unfortunately, collaboration with the family is, in most cases, difficult. Parents do not recognize the seriousness of the child's situation and consider that the teacher does not provide individualized support to solve the issue.
- A second difficulty is the lack of support that specialist staff can offer in dealing with this kind of cases: psychologist, counsellor, therapist, and doctor. The kindergartens is short in personnel/ in the psychological and medical expertise. The problem solving consists in an individual action of the family (visit the specialist). However, because of parent's conviction (often do not admit the existence of a deficiency), such an initiative take place only in situations with a clear risk, when children performances are very low.
- Another difficulty is due to the large number of children in the classroom, which considerably diminishes the personalized working time with these children. Practically, they interact very little with the teacher, and interactions with the equals are influenced by their poor verbal behaviour.
- Another difficulty is related to the quality of learning materials, which are not specifically designed for such special training situations. They must be continuously adapted by the teachers, and included in a personalized, systematic intervention strategy. This requires a considerable effort and time in using all resources.
- All children are digitally native. The discussion with focus group members is naturally oriented toward the subject of learning with the aid of digital instruments. The teachers recognize that they do not constantly use digital tools. Their experience is limited to the experimentation of some educational software based on language development. Digital platforms are not familiar to them, though they attach a great formative value to these language learning tools.

4.4. Technology use

During discussion, all teachers mentioned that the use of educational software is an effective learning tool that causes significant changes in the acquisition of language. After only a few learning experiences, they see the impact that virtual games and speech exercises have on correct expression and vocabulary. Educational software can be used in all types of activities. Most exercises also incorporate narrative segments that have allowed children to adopt appropriate communication strategies. Teachers prefers interdisciplinary designed software, for example: „Letters", „Spring", „Autumn", „Colours and forms", „Rex", „Piti-Clic" CD collection, „Animated alphabet", „English for children" etc.

In teacher's opinion, educational software has many advantages: provides a large amount of attractive game as a source of communication skills development; provide individualized language training, and effective feedback on child progress; simulates learning by means of attractive graphics, animation and sound elements (multimedia means).

There are also some disadvantages of educational software. The children should not be „forgotten", in front of the computer, they must be supervised and even helped by their parents. Depending on age, the time spent causes visual fatigue or low attention.

4.5. Current practices in language development

All participants are interested to measure the efficiency of different practices in the language development well as to discover the most advantageous strategies for valorising them. According their expertise, *games* and *tests* are the most useful methods of learning. Many activities are specially organised by teachers in order to develop oral communication. For examples:

- ❖ knowing different situations (phone dialogue, peer dialogue, adult dialogue etc.);
- ❖ supporting a dialogue both as a speaker and auditor – „The Phone", „At the Market" etc.;
- ❖ formulating the questions and answers – „Let's talk about this picture" etc.;

- enriching the vocabulary: „Who is it, who are they?";
- the correct expression of nouns in singular and plural („I say one, you say many");
- understanding the meanings of words through games and learning activities („Find the right word").

In order to acquire the differentiation of the sounds and groups of sounds separated or in different positions in the structure of the word, there are *various games* in which the children were put to listen carefully to certain sounds, difficult to pronounce and then repeat them. For misspelled sounds, children have been asked to use them in words where the sound is in different positions.

Socio-affective games helped to develop the self-image that helps children to be more careful about social communication. The competition during playing games has also a positive impact.

By applying current tests, teachers intend to determine the level of communication skills. Correction of the test is always based on performance descriptors. For example, teachers can use descriptors and scores such us: insufficient (behaviour requiring support), sufficient (behaviour in special attention), good (developmental behaviour), very good (attained behaviour).

At the end of the FG discussion, the moderator asked participants to list three types of strategies that can be used in language development: blended learning, in-vivo training, digital platforms/software. Participants's options are graphically represented below. Blended learning is a better practice for language dvelopment, including digital resources and conventional methods used daily in the classroom.

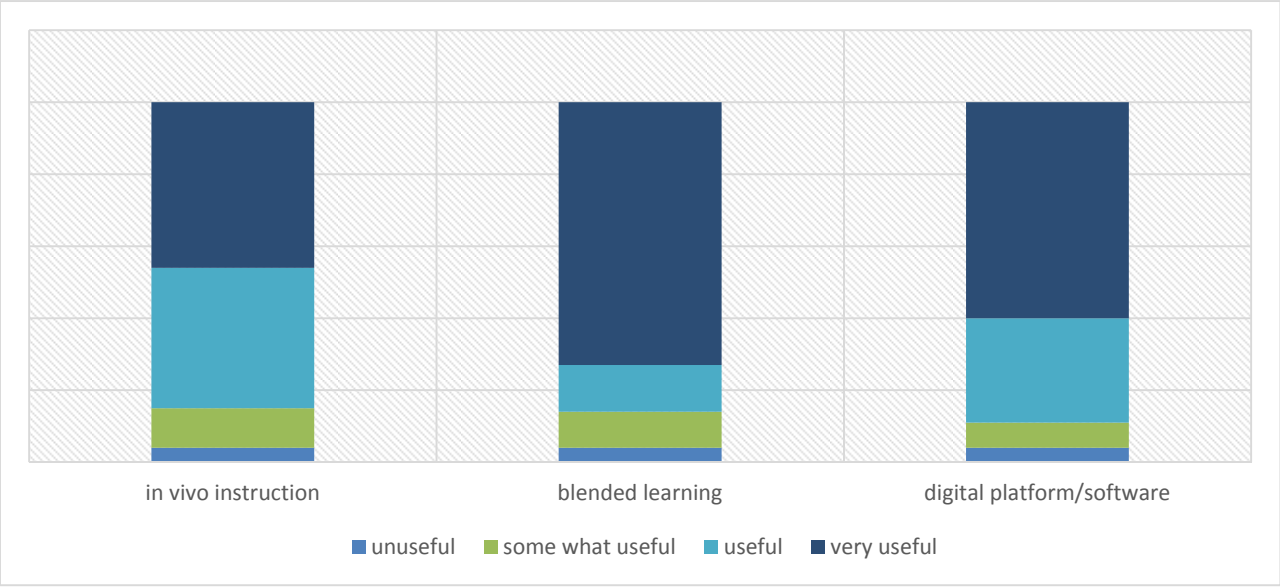

Figure 1. *Strategies in language development*

Conclusion

Compared with the school beginning, when children show a lot of confusion and hesitation in expressing language, at the end of the school year/kindergarten, teachers noticed that each child become a communication expert who try to self-correct. The teachers intervene every time to correct the wrong pronunciation or fix new knowledge in terms of language acquisition. With time, the interventions of the educator become increasingly rare.

In the collective interview, the following conclusion occurs: intervention in the case of children with speech difficulties is poorly supported. Creating an instrument as a resource for children's speech development is welcome. According to teachers, this tool (such us TIMLOGORO) should be accessible, low cost and easy to use. Durring discussion, they manifest a special interest for the use of an interactive multiplatform for communication skills development.

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Teaching Creativity Across the Curriculum Through Design Education. Case Studies

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Research article

Teaching Creativity Across the Curriculum Through Design Education. Case Studies

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Abstract

Keywords:

Creativity
Design education
Teaching
Teachers' understanding
Values
Curricula

This article examines the effectiveness of design as a subject fulfilling its role in developing creativity within students by allowing and supporting creative behaviour and its expression. Creativity in education has been a pressing issue for many countries in recent years, resurfacing as a key topic for discussion, yet the term is still surrounded by ambiguity and discrepancies. This study attempts to establish teachers' understandings and definitions of creativity, outlining their methods for its nurturance through a triangulation of research. The results returned inconclusive evidence of a precise definition agreed upon by the majority of educators, however, multiple themes arose throughout, demystifying the concept and adding to areas of the current body of knowledge. Implications for greater acknowledgement of the creative process rather than exclusive attention to products that abide by restrictive criteria are highlighted as steps in the right direction for the effective development of creativity within design as a subject in educational institutions.

Zusammenfasung

Schlüsselworte:

Kreativität
Design Bildung
Lehre
Lehrer Verständnis
Werte
Curricula

Dieser Artikel untersucht die Wirksamkeit des Designs als Subjekt, das seine Rolle bei der Entwicklung von Kreativität in den Schülern erfüllt, indem es das Verhalten und seinen Ausdruck unterstützt und unterstützt. Kreativität in der Bildung war ein dringendes Thema für viele Länder in der jüngsten Geschichte, wieder einmal wieder als ein Schlüsselthema für die Diskussion, aber der Begriff ist immer noch von Geheimnis und Diskrepanzen umgeben. Diese Studie versucht, das Verständnis und die Definitionen der Kreativität der Lehrer zu etablieren und ihre Methoden der Pflege durch eine Triangulation der Forschung zu skizzieren. Evidenz kehrte unerklärlich von der exakten Definition von einer Mehrheit, aber mehrere Themen entstanden durch, entmystifizieren und Hinzufügen zu Bereichen des aktuellen Wissens. Implikationen für eine stärkere Anerkennung des kreativen Prozesses und nicht ausschließlich auf Produkte, die durch restriktive Kriterien gelten, wurden als Schritte in die richtige Richtung für eine effektive Entwicklung der Kreativität in der Gestaltung als Subjekt, in Bildungseinrichtungen hervorgehoben.

1. Introduction

The National Advisory Committee on Creative and Cultural Education (NACCCE) report (1999) describes the term as using 'imaginative approaches' in the context of creative teaching. However, this fails to give a clear definition and rather passes the confusion on to the need to define what it is to be imaginative. Recognising this and referring to the report's description it is not a universal belief, Baer & Kaufman (2012) note that 'creativity refers to anything' when the product or method is 'original to the creator' and 'appropriate to the (initial) purpose'. In relation, some support the interpretation of a cyclical process, whereby all that is can be classed as an evolution from a previous stage. This then deems notions of creativity as a 'recreation' of that which has been done, given that the route taken to arrive at this destination is entirely unique (Pope, 2005). The authors describes this understanding as 'interpretive replication', in which inter-contextual knowledge, collected and arranged in a way singular to a particular individual, is used to achieve a desired goal, regardless whether that goal has been previously reached by way of another's approach.

Opposing schools of thought have argued creativity is originality in the purest form, being an effective method for reaching set goals, entirely unique to human thought, disregarding mere novel application (Ghiselin, 1963). Such speculation favours few in possessing such dexterity, as assuming people are equal in psychological function places a façade over the certainty of unrepeatable identity. Consequently, without acknowledgement of this, Tusa (2003) argues it will 'diminish society's capacity for innovative imagining'.

Comparatively, Montouri (2014) argues that creativity 'avoids premature definitions and categorisations', 'pushing back (the) boundaries' of previous assumptions and potential expectations of what the result produced may be. Expanding on this, Montouri suggests that it is due to such vague understanding that creativity was associated with the Romantic Movement, labelling it as a 'gift'

only found in a chosen few practicing the arts subjects. Lack of clarity remained for over a century, resulting in the continuum of mystery surrounding the term, with as little as 0.2% of publications in Psychological Abstracts being based on the subject of creativity (Guilford, 1950).

Although in disagreement upon certain aspects of the phenomenon, such opinions stand together in the understanding of creativity as a type of behaviour which refers to productivity and value of achievement in regard to outcome. Gilchrist (1972) explains the 'prowess' as something within all people, with the ability to be actualised if the right direction in development is taken, along which appropriate opportunities for utilisation can arise. Fromm (1959) supports such considerations, characterising it as the 'capacity' to orientate through activities with a proficient degree of awareness of experience throughout the unravelling process. Similarly, one's control, or lack thereof, over external and internal factors (e.g. environment, emotions) has been contended as potentially a deciding element in the materialisation of their creative ability (Sternberg & Lubart, 1999). Assuming so, this places the attribute on a multi-dimensional level, adding extreme depth for exploration, which due to limitations, is not feasible to cover in this project. Therefore, a focus on creativity's inclusion in education, particularly in the subject of design, will be further addressed.

2. Theoretical foundation

During the 1950s a realisation of the lack of innovation and imagination from university graduates became a cause for concern. Cropley (1995) reported how students were simply applying the 'already known in conventional ways'. With this in mind, many expressed feelings of being 'uneasy about emphasising creativity', contradicting the common sensible procedure to counter the increasing problem, although this failed to cease the newly found sense of encouragement for creativity to be written into curriculums.

The 1960s gave way to a focal shift on creativity and its development in children following the publication of 'Torrance Tests' (Feldman et al., 1994).

Torrance (1962) signifies Guilford's model of divergent thinking as having been the prime basis when designing the test, which opens room for debate as the model's association with testing for creativity is not universally accepted. However, from the standpoint of the institution, this approach seemed particularly appealing due to its practicality and plausibility; therefore, it was widely adopted. Through this, suggestions of taking a quantity over quality approach arose; for example, Ausubel (1964) claimed 'hard-headed educators…adopted highly unrealistic educational objectives regarding the nurturance of creativity'. Wallach (1969) criticised such frameworks, and he became a pioneer in renovating institutional attempts in creative development, pursuing the trait as being domain-specific rather than domain-general.

Fluctuations in belief of importance, along with struggles to perfect the approach, although varying in degree, remain a constant trial faced by educators. Once again, the need for creativity to be developed within students through educational institutions has become a pressing issue, concerning multiple countries (such as the UK, Hong Kong, Australia, Turkey and Singapore), who recognise its potential in contributing to social and economic progress when aiming to thrive in a world of rapid change (Lafci, 2009). The Journal for the Education of the Young Scientist and Giftedness (2012) comments on creativity being richer in the 'golden age' of childhood due to children's 'fewer prejudices' allowing them to 'experiment and give original solutions' to situations they face. Sternberg and Lubart (1999) expand on this thought, suggesting that they begin to 'suppress' these characteristics when enrolling in the educational system, which limits them to 'draw(ing) inside lines'. Further studies by psychological theorists view the grouping of individuals with the hope of coaxing independent creativity as counterproductive, as each student's creativity is a personal phenomenon (Abra & Abra, 1999). Baer and Kaufman (2012) offer a similar thought, as they explain in their dissection of motivations how 'extrinsic motivation (i.e. a deadline) zooms up' on a student, 'depressing creativity'.

In clear contrast they claim that by 'thinking deeply' (creatively) about content knowledge, it begins to cement itself into the memory; yet they go on to say that to be creative, or indeed think creatively, a significant level of knowledge is needed. Whichever opinion is chosen, it can be approached from two further angles: creativity as being domain-general or creativity as being domain-specific.

Gardner (1983) proposes five constructs of intelligence: verbal-linguistic, mathematical-logical, visual-spatial, naturalist and musical-rhythmic. Often creativity is associated with the ability to produce unique links between such areas, surpassing the rigid limits of common thought or, in the case of educational institutions, strict guidelines between subjects which run as domain-specific, as this is the 'safest and most practical course of action' (Baer & Kaufman, 2012). The Commonwealth of Australia (2008) holds the same perspective of the skill as 'limited to artistic domains' yet stresses the importance of it being encouraged in students whilst in school.

A further independent platform of belief suggests that the creative process is mainly the product of student exposure to a variety of external factors used to achieve an outcome. Moreover, with this accounting for a larger contribution, creativity has been argued to be something students should study 'distinctively' (Feldman, 1994). Arguably, Cropley's (1999) view of conditions necessary for creativity relate to such thought, as he stresses that emphasis on opportunity for students' expression of personality provides the necessary environment for creative disposition. He expands, describing such freedom as paramount within the 'classroom climate' to effectively engage the three psychological dimensions of creativity: cognitive factors, personal properties and motivation. Instating this approach produces further discrepancies, as school and university students face restrictive marking schemes, with little room in the criteria for such a freedom, by which they are marked subjectively through the marker's understanding of what creativity is. If in disagreement, a lower mark is then given, which has potentially negative effects on the student, as it may belittle Cropley's dimensions of personal properties (e.g. confidence, openness) and motivation.

2.1. The role of design as a subject in allowing the expression of creativity

In the National Curriculum for Design and Technology, the Department for Education UK (2013) states that the purpose of students' study is to offer them an opportunity to use 'creativity and imagination' to solve 'real and relevant problems'. It describes its aim as encouraging children to 'apply and build a repertoire of knowledge' so as to develop them into 'resourceful' and 'capable citizens'. Casakin and Goldshmidt (1999) support this theory in explaining how 'general pre-conditions' of understanding about a given subject are needed to develop 'expertise'. They go on to say how design students need not be taught the skill of analogy, as they already possess the 'cognitive capacity'; rather they need to be guided within this mind frame and become attentive to its potential when problem-solving. Findeli (2001) further expands such thought, suggesting design as a subject offers a place for students to be open-minded, utilising all areas of their intelligence, as 'one cannot act upon a system, only within a system'. This may suggest students cannot effectively be designers by exclusively focusing on the skills learned in a design class; rather they must encompass intellect from a broad range of subjects across the curriculum.

2.2. Studies in terms of creativity in design education

Undercutting these hopes discussed above, some comment on lack of enthusiasm from certain teachers in providing an environment where students can explore these qualities alongside the narrow set design briefs as a concern within design and technology (D&T) as a subject (Rutland, 2004). Further study into this area revealed that 'climate to a fairly large extent is in the hands of the manager', which, in this case, leaves the ultimate responsibility of ensuring suitability for creativity to the teacher and institution (Ekvall, 1996, p. 122). McLellan and Nicholl (2008, p. 4) report that only 57% of students agree they are allowed to choose the work they do in D&T, yet 93% of teachers believed that offering choices was important, highlighting a lack of consistency in perception. The study goes on to report 26% of said teachers agree it is a 'waste of time letting students work on design[s] in D&T that ultimately might not work'. Another study, comparing design professionals against design students, found that teachers need to push for more experimentation, supporting risk taking and uncertainty, to build a student's confidence about partaking in the creative process (Klein & Shragai, 2001). It continues, explaining how professionals organise 'dwell' time for the incubation and development of ideas, often resulting in positive affirmation when revisited, a process overlooked by many educational systems.

Additional argument holds that design as a subject must engage students and teachers through sovereignty in challenging projects and the education of complex skills, allowing for motivated, healthy human function from both parties (Deci & Ryan, 1985). Yeomans (1990) states that, presently, educational systems confine the student experience and limit staff incitement, consequently decreasing opportunities for creative behaviour, as they are overcome with the academic demand to be suitable for administration. He describes the perceived division between thinking and making, held by most institutions, as 'dangerous' for society, as it is imperative to recognise the link between subject study and subject practice to develop effectively. He provides further thought, suggesting that design as a subject is the most 'appropriate vehicle' in materialising the interests of citizens as both taxpayers and parents. A study by Klein and Shragai (2001) revealed that 'namely everyone can be creative', stating there are 'means to enhance' this skill, which, if true, should be the base for design as a subject's role in the curriculum. A current approach appears to be addressing this, as the Department for Education (2014) states that D&T assessment will not be on a set of opaque level descriptions but on the essential knowledge, understanding and skills that all pupils should learn'.

3. Research methodology

3.1. Research design and procedure

The aim of the research was to establish an understanding of creativity across Key Stages 3, 4 5 and university curricula. The objectives were to:

- Investigate teachers' perceptions of creativity and present overlapping ideas.
- Understand how teachers define creativity and use it within their teaching.
- Explore how teachers cater for creative students in their classrooms.
- Understand whether skills for creativity are taught or developed.
- Look at school and university curricula content and creativity's place within it.

The research questions were as follows:

- How do teachers define or understand creativity?
- Do teachers view creativity as an innate skill or believe it can be developed?
- How do teachers include creativity in their classes whilst working alongside the curriculum? What creative approaches do teachers use in their teaching?

The research was based on an interpretivist paradigm. An interpretivist model is the appropriate avenue of approach for the research subject due to the information gathered being of a qualitative nature (Mead, 1964). It is important to acknowledge that the authors' own understanding of the subject may be reflected through the research and analysis due to their own background in design education influencing the construction of their individual perceptions (Thomas, 2009). Cohen and Crabtree (2006) detail this as transactional or subjectivist epistemology, which suggests individuals cannot separate themselves from their understandings, as these are what forms our realities. The two continue, claiming one's reality is inherently linked to a particular context and therefore can be transformed through re-interpretations and negotiations of new observations in each moment.

In an area governed by subjectivity, the employment of social interaction to achieve a set objective (e.g. an interview) guides participants to a mutual understanding of what is expected,

resulting in an 'intersubjective consensus' (Popkewitz, 1984). This, therefore, supports the theory of research as being inextricably linked to the researcher's reality, as in that moment it is a collaborative construct of all parties involved. This is an important factor to highlight, as such a variable will distinguish one author's study of research from another's. It is also important to note that due to the abstract nature of the areas this research aims to investigate, such situations are generally 'adequate' or 'efficient' in outlining the depth and clarity of the opinion of the respondent (Glaser & Strauss, 1967).

A collection of primary research data was attained through a methodological triangulation of both questionnaires and interviews conducted with education professionals from secondary and university levels (Denzin, 1978). This arrangement has been widely affirmed, addressed as the 'hallmark of the good social science researcher' by Thomas (2009). Through this proposed methodology of two constructs, each beneficial in their own right, a variety of results and insights was formed, allowing cross-referencing to provide well-rounded material for analysis.

The participants, teachers and students in secondary education, were given all the required information on the reasoning of the questionnaire and interview and instructions as to what to do if they wished to terminate the exercise at any point or wished for the content provided by them to be removed and/or destroyed.

3.2. Measures

Questionnaires were used first as an instrument for the data collection. Questionnaires are widely accredited in the social sciences as providing an opportunity for information to be gathered without the presence of the researcher, thus allowing for an honest, personal response (Thomas, 2009). Open-ended questions formed the essence of the questionnaire, the reasoning for this being that the research aims to establish respondents' understandings, which can be best achieved with an invitation for free comment (Cohen, Manion & Morrison, 2011). The questions' wording was then discussed with a project supervisor and piloted with a teaching professional to ensure that the aims and objectives could be met with appropriate responses. The option to provide date of birth was included on the questionnaire to allow for comparison with their years of teaching, which aided assumptions on whether or not respondents' had likely worked in industry before their career in teaching and how, if at all, this may have affected their opinions. Of the 20 questionnaires distributed in Finchley Catholic High School, eight responses were received. Four further responses were received through individual contact with university lecturers.

To delve deeper into the respondents' understandings and move further towards the clarification of themes which arose throughout the information attained within the questionnaires, interviews were assigned. This was carried out with three participants, matching the previously proposed criteria as best as possible. The interviews followed a semi-structured set of questions, offering the researchers the opportunity to pursue opinions and/or attitudes displayed when discussing the interpretive sociology (Hopf, 2004).

Three interviews, which took place on 5 March 2015, were conducted with teachers in secondary education, and each lasted approximately 20 minutes. Due to ethical considerations and a conformed respondent request, the interviews were transcribed. However, although this meant that important data regarding reactions and body language were not collected, the researcher used such behaviours to aid decisions on which avenues of discussion to follow during each interview to elicit detailed authentic information. The combination of both a questionnaire and complementary interview allowed for a more balanced acquisition of complex results along with opportunities to better understand and, in turn, then organise shared ideas or discontinuities into thematic categories.

Where possible, results were quantified and tabulated to allow for effective and practical analysis. Wording has been categorised into synonyms and opinions so as to be assessed for themes and patterns and indexed accordingly into set codes. Such a process provides opportunities for the effective refinement, organisation and comparison of the vast subjective understandings received from each research process (Gibbs, 2007). The findings will then be triangulated for further substantiation and assurance of reliability (Golafshani, 2003). Variables which may have potentially intervened will be reported and considered if they appear to emerge as a particular pattern, followed by a discussion in regard to the extent to which they may have impacted the produced results.

When the analysis of results has been completed according to the findings, potential generalisations and assumptions about the wider population may be made (de Vaus, 1986). However, due to the limitations of opportunistic sampling and low number of respondents, each generalisation will be critically assessed for credibility in the discussion (Robson, 2011).

4. Results

4.1 Results from questionnaires

Table 1: *Participants who answered the questionnaires and their sex and professional area*

Questionnaire Participants	Subjects	Sex	Worked in Industry before teaching (Assumption)
Teachers (8)	Business / English / ART / D&T	5M/3F	4
Lecturers (4)	Science Business / ART / P.E. Design (various areas)	3M/1F	3

To determine patterns in the participants' understandings and definitions of creativity, the answers for questions 1 and 2 were tabulated to allow for the quantification of recurring words associated with the term. Throughout the questionnaire, many

participants mentioned additional words when addressing the term, which were also counted, abiding by Cohen and Crabtree's (2006) claim of understanding being a constant development through each moment and its context. Thereby, the results were then easier to analyse in regards to making generalisations of a teacher's or lecturer's perception of the word. Due to the vastness in response, particular words were grouped together according to their dictionary definition, as many were synonyms of each other. This allowed for a closer degree of clarification on key features related to the word and emerging trends, regardless of the synonym used, by accommodating varying vocabularies. Additionally, responses from teachers and lecturers are presented separately, providing room for comparison.

Table 2: *Results from questionnaire Q1*

Questionnaire -Q1	Mentioned in Q1 Teachers	Mentioned otherwise Teachers	Mentioned in Q1 Lecturers	Mentioned otherwise Lecturers	Total
Innovative	2	0	1	0	**3**
Challenging traditin /Outside the box /Risk Taking	3	1	4	3	**11**
Original /Unique /Individual /Novel /New	5	2	5	4	**16**
Adaptable /Flexible /Survive	2	1	1	1	**5**
Different	1	1	2	2	**6**
Thought process	0	0	2	1	**3**
Experimentation	1	1	1	1	**4**
Imagination	0	0	2	3	**5**
Behaviour /Attitude	1	1	0	1	**3**

As can be seen from the results, the pattern most common is the view of creativity involving something original, unique, individual, novel or new, with 'new' accounting for 7/16 mentions. Closely following are opinions of creativity being linked to a 'thinking outside the box' approach, which accounted for 5/11 mentions. Aside from the 'adaptable' and possibly the 'innovative' groups, none of the others are inherently linked to a positive product or achievement, arguably sharing undercurrents of a description rather a process or approach. However, although there is general consistency throughout in regards to the correlation of answers provided, only one of the participants (lecturer) explicitly put forward the term as being a thought process or the use of imagination.

Table 3: *Results from questionnaire Q3*

Questionnaire – Q3	Teachers (8)	Lecturers (4)	Total
Creativity is an innate ability, some are born with.	4	0	4
Creativity is a capacity all are born with.	4	4	8
Creativity can be taught/developed.	7	4	11

The same process of tabulating results where possible for quantification was then applied for the first section of the results for Question 3. Once again, teachers and lecturers were separated for comparison. The quantified results show clear disagreement in creativity being seen as something those who possess it were born with and it being seen as a potential within all humans in the responses from the teachers. Comparatively, all lecturers held the opinion of creativity being a capacity within all. Further, all bar one respondent agreed with the possibility of creativity being taught or developed. Many expanded on their response, highlighting the key role of a student's environment as a deciding factor for such learning and development. One lecturer went as far as to provide a metaphor of creativity being like a 'muscle', implying potential for strengthening and growth through correct

exercise, with another claiming all nature itself is creative, as it must be to survive.

Question 4 sought findings of a completely qualitative nature, therefore removing the opportunity to quantify and tabulate. However trends and patterns did arise, revealing common methods for catering for creative students whilst working alongside a set syllabus. A total of 5/8 of the respondents who were teachers along with 1/4 who were lecturers commented on allowing relative freedom of individual expression at the beginning of a project, promoting confidence and increasing the interest of the student, which they then work on refining to meet the criteria of the syllabus. Another trend arose, with 2/8 teachers and 2/4 lecturers mentioning the use of suggestion and encouragement going beyond the set project, asking questions that aim to entice imaginative responses and build confidence in conviction and risk taking.

Question 5 prompted respondents to view themselves as creative in their teaching in an attempt to encourage confident descriptions of teaching methods they use and believe to be an expression of this. Strong trends surfaced deeming the need for adaptability in regards to the use of 'different' methods for varying student personalities to be the paramount approach when teaching creatively. This was explicitly mentioned by two participants from each group. Arguably, this was further supported by repeated mentions of using a range of tasks and technologies to effectively deliver the subject to all students, engaging rational, logical, kinetic and visual learners. One teacher suggested challenging a student's ideas and understandings is their own way of teaching creatively, as through this they claim it can 'open their thinking', relating back to the recurring definition in Question 1 of creativity as 'thinking outside the box'. In contrast, one of the lecturers stood in complete disagreement to the opening statement of the question ('All teachers are creative, they have to be'), stating their teaching methods are not creative but rather 'tried and tested'. Furthermore, they offered advice, articulating the need to 'not confuse being creative with creative teaching'.

4.2 Results from the interviews

Three interviews were conducted with participants from each of the 0–3, 4–7 and 12–15 years of experience categories in an attempt to determine whether or not differences in understandings and methods used may have subsequently been affected by level of national interest at the time. All three were males, had previously worked in an industry related to D&T and now taught the subject in Key Stages 3 and 4 alongside teaching Product Design at the A level. Participant 1 (12–15) had a degree in Product Design and a previous career background in engineering. Participant 2 (4–7) had a degree in Product Design and a previous career background in a variety of design disciplines, having also lectured on Product Design for two years at the University of Leeds. Participant 3 (0–3) had a degree and a previous career background in architecture.

Question 1 asked whether or not Design as a subject in the curriculum actually allowed students to be creative. Participants 1 and 3 expressed similar opinions on programmes of study in Key Stage 3 being restrictive in terms of creative teaching and output, as they stemmed from more of a theoretical base covering a broad range of areas in the subject. Participant 3 commented on how this directs the curriculum away from creativity and toward a 'factual and informative' process. Participants 1 and 3 continued in agreement, explaining how Key Stages 4 and 5 allow 'greater opportunities to be creative', as projects 'come from the individual', giving them 'ownership' of the project. The two provided further responses, stating they do believe design allows for creativity, with the optical character reader (OCR) syllabus offering many marks when exercised. However, Participant 3 went on to say that teachers develop a sense of 'fear' in these stages, as a lack of control over these freedoms often reflects badly in academic performance; therefore the process is often diverted back towards 'box ticking'.

Comparatively, Participant 2 made no comment on the curriculum itself nor on a set syllabus; instead he reported on how although programmes of study do make creativity sound 'exciting', they only concern its ability to produce results and products that may contribute economically to the country rather than creating an 'environment for creative patterns of thought and opportunities'. He continued, noting that design as a subject is a template, open to interpretation by institutional management, who often show little interest, therefore 'falter[ing]' the nurturance of their students' creativity.

Question 2.i invited participants to expand on such views in regards to increasing the involvement of creativity in the curriculum and how this may have affected their opinions over time. Participant 1 responded by claiming that involvement in Key Stage 3 had 'mainly stayed the same', providing base knowledge to be used later on, yet believes it has been 'increased and encouraged' in Key Stages 4 and 5. Participant 3 believes little change has occurred although there does 'appear to be a shift in this direction'. Participant 2, once again, gave response from a completely different angle, explaining how his generation grew up in the era of the Keele Project, which focused on how to effectively produce designers. He continued, suggesting that it is due to this generation now being in influential positions that such attempts to develop these skills are being revisited and perceived with upmost importance.

Question 2.ii probed deeper into this area, seeking examples of how each participant has adapted to such changes. Participant 1 detailed the use of new technologies such as interactive white boards, flip-boards etc. within his teaching, expanding methods for delivery to cater for the 'modern student', although he did point out that the content delivered is mainly the same. Participant 2 stated he feels that during his time teaching, nurturing creativity has become increasingly difficult, as the time that is needed to do so is often supressed to ensure the completion of recording statistics, facts and figures to increase academic success. He believes that this is what is 'holding back the development of many students'. He remarked that this is a drain on a student's energy, leaving them unfit to thrive in an exercise driven by levels of relaxation and mood. Countering this, however, he explained how he has 'adapted by being selective and tries to outwit the system'. He expanded on how he does this in his response to Question 2.iii. Participant 3 gave little in response, explaining how he 'attempt [s] to encourage

creativity, which he has found becomes futile as academic success, is favoured.

Question 2.iii raised the issue of how to cater for creative students in the classroom whilst meeting the demands of the syllabus. Participant 1 took the approach of promoting independence through beginning a project with students having free reign on choice of idea. He explained how this results in enthusiasm as the student chooses a subject of interest, which is the only way a student can be at their most creative. Once a direction is taken, he begins to 'stretch' their ideas and opinions to develop a refinement of how such a solution would work. Participant 2 gave a similar answer, as he provides extra opportunity during his personal time for outside work and development, where he questions the student's work, making suggestions and links to the wider subject area to better round them with a broader knowledge for the ideation of appropriate solutions. Participant 3 based his answer on marking the work of a creative student, re-emphasising how he encourages creative effort and rewards students who have shown this by taking risks through their design process rather than exclusively marking the end product.

5. Discussion

5.1. Defining creativity

The literature review began by stating the NACCCE's (1999) ambiguous description of creativity, which can be viewed as more closely related to a purposeful process with some value in the outcome than simply a product of high achievement. They perceive 'originality' and 'value' as two out of four equally accounting factors embodied within creativity, acknowledging the subjective nature of evaluating this, yet they fail to outline how the 'value' of produce will be determined fairly. Following this, they say 'creativity has obviously to do with producing something original'. Studies from this project found close relation, as grouped synonyms of the word 'original' governed respondents' definitions of creativity, yet neither the NACCCE's, the respondents' nor the dictionary definitions of the words in the synonym group explicitly mention level of achievement of the outcome.

Branching arguments focused on whether originality was concerned with being new in the eyes of the creator(s) or new to human thought entirely. Baer and Kaufman (2012) and Pope (2005) support the former, agreeing that as long as the product meets previously set conditions, it is creative. Some of the results found were supportive of this view, revealing that respondents linked creativity to adaptation, flexibility and survival, each more closely related in definition to recreation than creation. However, once again, there is no definitive process in determining how well conditions are met or differentiating between what it is to survive and what it is to thrive. From these results, opinions of creativity being only a process or product of original human thought can be ruled out.

Montouri's (2014) view of assumption and expectation as 'boundaries' likely to be broken when creativity ensues was also found to have recurring support, with respondents repeatedly referencing creativity as 'thinking outside the box' or 'risk taking' by 'challenging tradition'. Throughout the research, just one indication of product or product value was given, suggesting the definition resides in the area of process. The respondent distinctively expressed such words, possibly implying Gilchrist's (1972) definition as a 'potential', being the better suitor, as the majority of respondents agreed creativity is a capacity all possess.

5.2 Creativity in education

Fromm's (1959) views of awareness of experience and inter-contextual links were found to be determining factors in such a potential being realised, possibly explaining the frequent view of creativity seemingly being more apparent in one individual than in another. The results from all the lecturers supported this angle of opportunity for growth to be common in all humans, yet a clear divide in the teachers' opinions was found, as half believed it was a talent only existent in some, reinforcing openness to interpretation. It was further established that all (bar one respondent, who cannot be included simply because a response was not provided) believed in the capability of creativity being developed. Bearing in mind that to develop the means to 'improve' or 'advance', Castro-Fajardo et al.'s (2014) comment on childhood being a 'golden age' of richness in creative behaviour would imply amplification throughout schooling if educational institutions actually developed creativity. However, it was found that Sternberg and Lubart's (1999) suggestion of such behaviours receiving incremental suppression once children enter school was supported by the teachers, claiming they struggle to encourage students to 'think outside the box' whilst the syllabus requires them to 'draw inside lines'. Arguably, this may be the case when considering Baer and Kaufman's (2012) remark on the necessity of substantial knowledge to express creativity in a given area, presenting the issue of schools needing to provide sufficient education in multiple areas to ensure they cater for each individual. The research findings outlined the opportunity for individuality to be regarded as highly important yet agreed with Ausubel's (1964) consideration of current approaches to doing so as 'unrealistic', as demand for higher grades, seemingly achieved through quantity over quality approaches, restricts this.

Expanding further, respondents predominantly held the understanding of creativity being domain-specific as opposed to the common institutional understanding as being domain-general, a system suggested to be detrimental towards individual actualisation (Abra & Abra, 1999). Acknowledging this, the ability to adapt methods of teaching to meet the differing needs of students was repeatedly emphasised as being creative by respondents, aligning with Cropley's (1999) and Ekvall's (1996, p. 122) advice to realise the importance of the correct environment and climate. Opinions in the findings further expressed that when such a median is found, students will gain confidence in themselves and their work, with increased levels of interest, inducing progression in self-development. Extensively, support for Cropley's (1999) warning that failure to categorise this as academic success and not awarding marks appropriately often lowers student confidence in creative expression surfaced as being a present reality viewed by multiple respondents. However, this should not be equally assumed of all institutions, as the majority of respondents were from the same

workplace, and it is widely recognised in both this study and others that approaches to education and the extent to which certain areas are valued often varies.

5.3 The role of design as a subject in allowing the expression of creativity

As previously mentioned, it is said that to be creative, and indeed acquire expertise, 'general pre-conditions' concerning knowledge relative to the subject are fundamental (Casakin & Goldschmidt, 1999). This reason is a likely justification for Key Stage 3 programmes of study to have been deemed restrictive in content by participants as well as the Department for Education UK (2013) stating the intent for the subject to expand the students 'repertoire of knowledge'. Later findings revealed it was generally agreed that Key Stages 4 and 5, through allowing students choice in projects, did provide some space for creativity but were viewed as limited and enigmatic. One participant described this as being the result of poor judgment from society, as its main concern is proven economical contribution, overlooking the benefits of an environment which nurtures creative thought due to its irregularity. Such speculation refers back to Cropley's (1995) point of design students being taught how to efficiently navigate machines but lacking awareness of and experience in successful design processes, undercutting the Department for Education UK's (2013) aim to produce creative solutions for 'real and relevant problems'.

Participants' responses go on to coincide with Rutland's (2004) claim that D&T departments contain unenthusiastic teachers, as it was found that the management of institutions often has 'little interest' in anything other than academic results, downplaying developments in the subject syllabus and methods of delivery as content remains generic. Such findings could explain McLellan and Nicholl's (2008, p. 4) data revealing a significant number of teachers disregarding projects in D&T that lack clarity, as participants in this study felt pressured into 'ticking [criteria] boxes' and consequently believed this held back their students.

Recent updates saw the Department for Education UK (2014) state that grade descriptors would no longer be 'opaque', yet the participants disagreed on this being materialised. Klein and Shragai's (2001) highlighting of the need for increased support in process and experience does not seem to have been actualised either, as one participant openly admitted to having to 'outwit the system' to effectively promote independence, build confidence and increase enthusiasm to better round a student as a proficient designer. Similarly, it was found that another participant in agreement with the need to implement such support practiced this by awarding fair marks for creative effort rather than exclusively to outcome.

5.4 Overview

Both primary and secondary research further reinforced the fact that creativity is ambiguous in exact definition due to varying individual interpretations. However, relative themes do arise when investigating perceptions, some of which were given support through the findings in this study, allowing for easier understanding and comparison. Despite this, terms put forward from both theorists in the literature review and the respondents of this project's study were usually unclear in their own definitions and subjective to the individual concerned. The mystery continued, as uncertainty and conflict were apparent in the process debate, the product debate or both, with considerable theory supporting each angle. Once again, it is an arguable view, but the perception of creativity as a process was found to be prevalent, supported by much of the current literature, the study results and the authors. Furthermore, some of the chosen wording, along with the context in which it was used, often contradicted that of another opinion, which illustrated the dangers surrounding the expression of creative behaviour from an individual with an opinion that opposes the opinion of their external environment. As a result of this, although many associations were clarified as common thought, the research failed to find a majority view, leaving the term indefinite.

The evidence mainly found creativity to be seen as a capacity within all, which had a variety of techniques available for it to be enhanced, yet it was put forward that current educational systems have failed to administer such processes. Considering this, it cannot be overlooked that core knowledge and skill are needed to work in a field effectively before creativity can be exercised. It was found that institutions are believed to have misjudged this, hoping to teach creativity through a syllabus and mark it against a fixed criteria rather than teaching skills followed by furnishing an environment where individuals and creative expression may flourish. The authors would be in support of such a portrayal, as personal experience was reflective of such dictatorship over the enjoyable freedom of what creative expression should be. It was communicated that too much focus is placed upon end results equating to academic success, misinterpreting the process of development as a constant throughout creative behaviour. Furthermore, if all work is marked against a set criteria of what is known or expected, and something completely new but unproven is submitted, effective assessment cannot be completed if it is against the preconceptions of the former, restricting academic success to only what is already known. The evidence mainly found creativity to be seen as a capacity within all, which had a variety of techniques available for it to be enhanced, yet it was put forward that current educational systems have failed to administer such processes. Considering this, it cannot be overlooked that core knowledge and skill are needed to work in a field effectively before creativity can be exercised. The literature reported several projects that employed different methods for improving creativity. The majority of these were curriculum development programs, rather than research based, largely focusing on measuring the quality and quantity of the use of idea generation; for example, the Torrance Tests of Creative Thinking. The findings in the reported studies involving young students indicated that the development of creativity skills through training can improve divergent-thinking performance. The majority of the studies incorporated brainstorming and this highlights the importance of brainstorming within the creative process. The studies also indicated that training aimed at improving creativity can be effective for all students, including the gifted and the disabled. Furthermore, the literature indicated that the use of computer software to support creativity is effective, with regards to improving students' attitude to learning.

The literature showed there are alternative system in assessing and marking creativity by teachers. Otherwise creativity development would just be a hidden process of education that could not be measured. There are three main methods to assessing creativity in students' learning or by product; by process and through a mixture of these. They comprise visual and graphical representations as designs, paintings, sketches, drawings, photographs, videos, computer animations; physical and virtual models and constructions. They can also consist of performance as theatre peace, simulation, role play, dance, song and live or recorded presentation. In higher education products might consist of essays and numerous forms of writing counting, diaries, reports and reflective logs, poems, posters, the products of electronic discussions; the results of problem working, independent and collaborative projects in design and synthesis, laboratory or field notebooks.

Processes can be examined within which creative. They may have been individually created and self-directed or be built collaboratively or involve elements of both. Some may be established within pedagogy as problem based learning, design process, role play or they may constitute rehearsals aimed at creative presentation. Process can be measured through direct observation of pupils, through video or tape records or diaries, through reflective individual accounts supported by evidence that authenticates the account.

In the lower Key Stages such restrictions are appropriate, as knowledge and skill must be attained through strict and efficient practice, yet it appears institutions forget that this is not the end all and be all. The continuum of such systems into later academic life is inappropriate, as it incapacitates the provision of an environment with opportunities for individual creativity. This then is the reasoning for the production of merely 'capable' designers being ill-equipped and slow in discovering opportunity for social or economic leaps, which are, as Gilchirst (1972) says, usually realised and applied by creative individuals. This appears to be due to misinterpretation and an ineffective approach towards the development of creativity on behalf of the institutions, as it was found students do not perceive D&T projects as having substantial freedom for pure creativity. If so, then it will require insightful change, understanding that it is the students' perception that is paramount, as only once their needs are met, and they are comfortable and interested in the meaningful challenges set, will they generate and realise clever solutions and become creative designers.

Conclusion

Concluding this study, understandings of creativity have been established to be broad in range between individuals, with some opinions opposing others, and a sense of mystery regarding creativity can be said to still surround the word. This is apparent even between directly linked parties, such as the Department for Education UK, its educational institutions and their teachers. It was found that the curriculum does show intent to nurture creativity, but due to its and the set syllabus' interpretations being different to those of many teachers and their students, the institutions currently appear to be failing to accomplish this. Much of the research indicated that creativity is more closely linked to process than product, and therefore project processes should be celebrated as academic successes, understanding that the key development of such processes lies within support, guidance and opportunity. Although D&T as a subject and programme of study appeared to be struggling to actualise this, it has clearly gained the recognition of some design teachers, who took the initiative to step ahead of the curriculum's current misjudgements, informing students of the need for experimentation and awareness of experience to enhance their creative abilities.

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Concrete Modalities of Conducting an University Course

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Theoretical article

Concrete Modalities of Conducting an University Course

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Abstract

Keywords:

Course
Students
Cornell note-taking system
Debate
Reflection

Students differ greatly in what concerns the cognitive structures they possess and regarding the cognitive strategies which they employ during classes. For this reason, in the present article, we propose a certain course of action which would allow the new content to be learned while being understood, due to the fact that the student is able to connect it logically to the cognitive structures already existent, considering that the understanding of knowledge is in its nature a constructive activity. By studying during the classes through the proposed approach and taking notes through the Cornell note-taking system, the students form their own mental systems, their own personal models for the processing of information, and their own personal cognitive style as a result of formulating questions, hypotheses, ideas, and through their proposals for projects, knowledge blocks, and skills. The student debates, structures, and restructures. During classes, the students are thus able to organize and realize cognitive experiences; they are actively engaged in learning mechanisms, they interiorize, reflect, formulate, correlate, all while taking notes. The students develop their ability to organize, within their notes, their educational process in a rational manner, building upon the learning unit or activity. In this way, they can participate in the construction of the learning objectives, of the thematic unit, in other words – in the construction of the content itself. As a result, the autonomy of the students is developed, as well as their initiative, the students being encouraged to use their knowledge, to exercise their imagination and creativity.

Zusammenfasung

Schlüsselworte:

Vorlesung
Studenten
Cornell-Methode für Notizen
Debatte
Reflexion

Die Studenten unterscheiden sich stark in ihren kognitiven Strukturen und in Bezug auf die kognitiven Strategien, die sie während den Vorlesungen einsetzen. Deshalb schlagen wir in dieser Arbeit eine gewisse Vorgehensweise der Vorlesungen vor, Ansatz bei dem, der neue Inhalt gelernt werden kann, während er verstanden wird, weil der Student den Inhalt der bereits vorhandenen kognitiven Strukturen in einer logischen Weise verbinden kann und das Verständnis von Kenntnissen eine konstruktive Aktivität ist, die von Studenten, anhand kognitiven Strategien, durchgeführt ist. Studieren durch den vorgeschlagenen Ansatz während Vorlesungen und verwenden die Cornell-Methode für Notizen erlauben den Studenten ihre eigenen mentalen Systeme, eigene Modelle der Informationsverarbeitung, eigenen kognitiven Stil zu schaffen, weil der Student Fragen, Hypothesen, Ideen, Schemata formuliert und schlägt Projekte, Blöcke von Wissen, Fähigkeiten vor. Er debattiert, strukturiert und umstrukturiert. Während Vorlesungen organisieren und erleben die Studenten kognitive Erfahrungen, sie sind aktiv engagiert in den Mechanismen des Verstehens; sie verinnerlichen, reflektieren, formulieren, korrelieren und nehmen Notizen. Die Studenten entwickeln ihre Fähigkeit, das Lernen in Notizen zu organisieren und bauen rational um das Thema oder um die Lernaufgabe. Sie beteiligen sich also am Aufbau der Ziele, dem Thema, also dem Inhalt. Die Autonomie und Initiative der Studenten werden entwickelt, sie werden ermutigt, ihr Wissen zu nutzen und ihre Phantasie und Kreativität zu trainieren.

1. Introduction

The manner in which students approach learning during courses refers to the superficial or in-depth processing of the scientific content discussed. Even though the teacher can do much towards encouraging the implementation of an in-depth processing of the information (through the content itself and the style of teaching), it is the student that ultimately needs to adopt an individual approach to studying and learning that would result in a deeper engagement with the content and observation of their progress. Stimulating an in-depth approach during classes can also be achieved through various learning activities to which the student is exposed to. The teacher thus stimulates the student to acquire learning skills alongside knowledge of the subject matter, even within the content area. Encouragement to think about what has been thought can coincide with encouragement to think about how to learn; thinking can be stimulated through the student's approach to knowledge that has been newly acquired and scrutinized within their own cognitive scheme.

For the organization of classes where discussions, reflections, etc., are predominant, the individual study strategies and the intellectual activity techniques are carefully proposed by the teacher (Jucan, D., 2009). Therefore, for the teaching-learning activities of the course *The Theory and Methodology of Instruction.*

The Theory and Methodology of Assessment, class taught to the 2nd year students of the Faculty of Economics and Business Administration that are also enrolled in the teacher training program, we have proposed a particular course of action which we have presented to the students. Furthermore, we have also presented them with a new note-taking technique, namely the Cornell system, and the students have used the new system or its various methodological alternatives to take their notes during class (Fleming, N. D., & Mills, C., 1992).

We have chosen this particular note-taking technique bearing in mind that it transforms the operation into an active and conscious process. As such, the active reception of the information and its organization lead to a higher level of understanding, thus raising the accuracy of retention as well (Deese, J., & Deese, E. K., 1979).

The Cornell system facilitates the intervention of the person who is taking notes upon the content at the same time as the content is heard and recorded. The system also helps in organizing and systematizing the information for its later decoding and reviewing (Entwistle, N. J., & Ramsden, P., 1983).

2. The concrete execution of the course

In what follows, we will describe the manner in which the lesson „The Educational Process – The Main Subsystem of the Educational System. Components of the Educational Process" was executed.

We wrote down the date and the title of the class. We then presented to the students the objectives to be pursued during said class:

O1: Correctly define the concepts: educational process, curriculum, didactic strategies, content of the educational process, form of organization of the educational process, feedback;

O2: Analyze the educational process from a systemic perspective;

O3: Analyze the components of the educational process;

O4: Explain the importance of feedback within the educational process;

O5: Record the information using the Cornell note-taking system.

This being the first course conducted in this manner, we insisted that the students write down the key terms in their respective column, and the actual notes in their corresponding column. We wrote the scheme for the Cornell system on the blackboard, and also later added to the blackboard the notes the students had taken.

(1) Identify the key words, concepts, phrases and define them.

First we identified together with the students the key terms: educational process, curriculum, didactic strategies, content of the educational process, form of organization of the educational process, feedback.

(2) Establish connections and subordinations both between the keywords and your previous knowledge, inclusively through the use of graphic organizers, diagrams, figures.

Following this, we realized the connections and subordinations between the key terms and developed charts or cognitive organizers. The manner in which the terms were correlated was individual, as well as how the connections were achieved, each student developing their own personal organizer. To summarize, the diagrams contained the following:

Figure 1. *The systemic approach to the educational process*

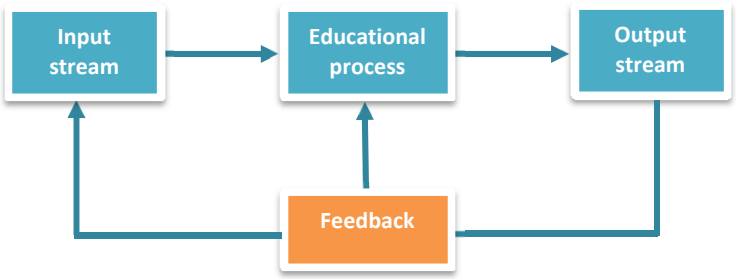
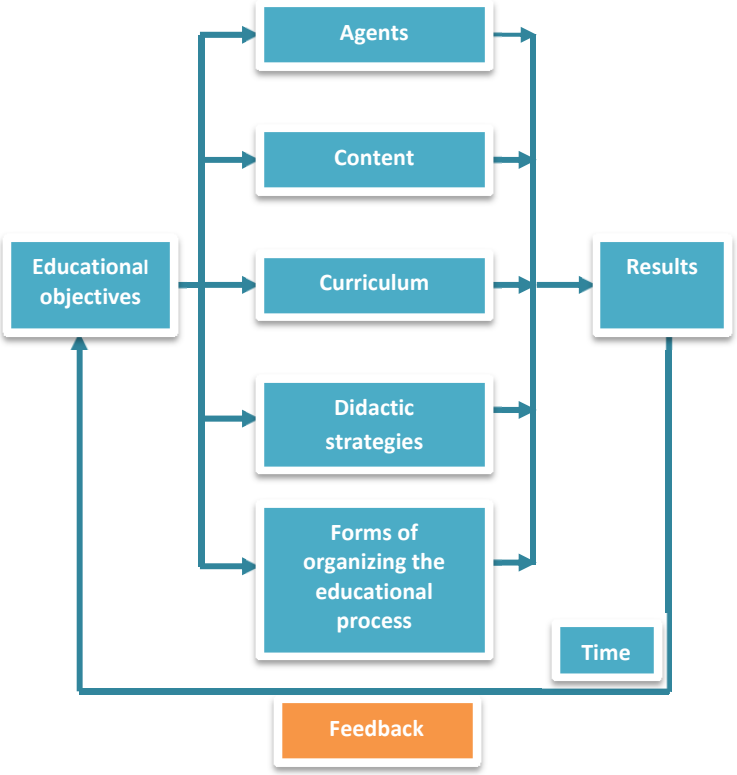


Figure 2. *The components of the educational process*



(3) Analyze the new content, realizing descriptions, explanations, and highlighting the importance of the content from a theoretical and practical perspective.

We analyzed the new content together with the students:

We defined the educational process: the complex instructive-educational activity carried out systematically by pupils and teachers in schools, activity thanks to which the pupils acquire a system of knowledge, abilities, capacities, skills, and competencies on the basis of which they acquire scientific knowledge of reality, they form their conception of the world, their moral beliefs, their

character traits, as well as their knowledge, research, and creation aptitudes (Bocoş, M. & Jucan, D., 2007).

We identified each component of the educational process and have presented their characteristics along with the students (Ionescu, M., 2003). They then analyzed and highlighted the importance of each component, from both a theoretical and a practical perspective. In essence, the discussed ideas were focused on:

a) The agents are teachers, students, parents, etc. The interaction between the human resources outlines what could be called as an 'educational field', in which the teacher and the pupils remain the main elements. Modern didactics places the student in the center of attention, aiming to make him an active participant in his own formation (Ionescu, M. & Chiş, V., Eds., 2001). The teacher thus has the task of organizing the 'educational field'; he has the responsibility of designing, conducting, and guiding school activities and extracurricular activities to a certain extent, all with the purpose of educating the students and shaping their behavior.

b) Outcomes and objectives of the educational process represent the instructional and educational requirements imposed by society – the type of results expected. These objectives correspond with certain major social requirements regarding the qualitative and quantitative level of the acquisitions that the pupils have to obtain in regards to their value judgments and their behavior. The objectives establish the following:

- What the pupils are about to know as information;
- What they have to be able to do as an action/skill;
- What attitudes and judgments to adopt.

In any activity, and thus in the didactic one as well, the goals or objectives are formulated at the beginning of the action, but they acquire a tangible form at the end, the results attained being the ones that confirm the achievement of the objectives.

c) The curriculum refers to the educational offer of the school and represents the system of direct and indirect experiences offered to those being educated and experienced by them in formal, non-formal, and informal contexts (Neacşu, I., 1985).

d) The content of the educational process is the basic support of education and consists of the bases of science and culture. The educational process conveys scientific, technical, literary and artistic, philosophical, religious, and ethical content, based on a particular logic and according to various degrees of difficulty.

e) Didactic strategies (didactic methods, teaching aids, and forms of organizing the didactic activity): didactic methodology is the system of didactic methods and procedures; it is concerned with studying the definition, the nature, the status, the functions, the classifications, and the principles of using didactic methods, both from a theoretical and a practical point of view, through the lens of a unified conception on the act of teaching and learning. The traditional instruction techniques included verbal means, chalk and a blackboard. The range of teaching aids has expanded to encompass, in addition to the audiovisual equipment (slides, films, magnetic tapes, etc.), the electronic computer (the Internet etc.), all of which have greatly amplified the classical possibilities.

f) The forms of organization of the teaching activity refer to the specific ways of designing and accomplishing the teacher-student interactions and promoting certain types of collaboration between them, in accordance with the educational outcomes/ objectives pursued. The history of education has accredited the organization of education by classes and lessons as a proven method of operating, which has been continuously diversified and improved.

g) The whole process of education takes place in time: school year, semester, school week, school days, class hours, etc. The content of education appears segmented in time units: the teacher plans, divides, and allocates his work according to the available time.

h) The educational process is a dynamic and complex process, which can be assimilated to a complex system of constantly changing and balancing interactions. The continuous adjustment of the system is realized via reversed connection/feedback, which designates the information pertaining to the achieved results, information originating from the system's 'output'. This information is then directed back towards the 'input' of the system, so that it may be able to change its configuration according to the proposed goals. Depending on the timing of the feedback in relation to the teaching sequence, we can talk about formative feedback, which is done systematically during the entire teaching sequence and has the purpose of supporting the pupils' learning activity, and summative feedback, which is achieved at the end of the sequence and is meant to provide information about the pupils' and the teacher's performance.

(4) Ask questions about the content, reflect upon it.

By going over the new content at this point in the class, the students were encouraged to ask questions regarding the discussed content in order to retain it more easily and to reflect upon the essential points, the main ideas of the content. In general, the questions raised by the students were:

- What is the systemic approach to the educational system?
- What is the educational system?
- What are the components of the educational system?

The students reflected further on the components 'curriculum', 'didactic strategies' and 'feedback'.

Furthermore, the problematizing situations during this class focused on the following (Potolea, D., 1989):

- Establishing the relationships between the components of the educational process;
- The role of the systemic approach in the analysis of the educational process;

- Explaining the role of feedback in the educational process, both at the macro level, but especially at the micro level.

(5) Give personal feedback on effective modalities of studying the content.

The students expressed their opinions concerning effective methods of studying this particular lesson (Vinţanu, N., 2001). Many students have stated that notes that are categorized in this manner help them when studying, and also that the diagrams are of real use, others have stated that by going through the content in this manner they have understood almost everything during the class and will just be reading the notes.

(6) Summarize the content.

We asked the students to summarize the content we had discussed in 2-3 phrases and write the phrases down in the space reserved for this purpose within the Cornell system. We then wrote the summary on the blackboard and the students in their notes.

We checked the students' notes. In the first column they had written down the keywords. In the second column they had written the definition of the educational process, the diagrams, and the characteristics of each component of the educational process. The third column was occupied by the summary of the class.

We note that we have conducted each class in this manner, observing and directing the instructive-educational activity throughout the semester. We have continuously attempted to reinforce the theoretical foundation of the students, but above all to develop their reflexivity and to determine them to make connections in their pedagogical knowledge.

Conclusion

We have continuously monitored the activity throughout the semester and have concluded that carrying out the classes in this manner has determined the students to: profoundly reflect upon their pedagogical knowledge; realize connections to the information in their previous pedagogical courses; address and ask themselves pertinent and problematizing questions; creatively and individually process the information; make observations and analytical comments based on the information; relate and logically integrate the information into their personal cognitive systems; establish links in the information, while at the same time updating the knowledge previously acquired; relate and interrelate the key pedagogical terms in a descriptive manner; structure ideas with the help of cognitive organizers; illustrate in a practical manner, through examples, the pedagogical knowledge; synthesize and organize the information; maintain a positive attitude towards the subject matter, but especially towards the job of a teacher. In essence, this course of action has supported the students' development of the skills necessary to a future teacher.

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Implicit Learning Centered, New Media-Based Instructional Model

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Research article

Implicit Learning Centered, New Media-Based Instructional Model

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Abstract

Keywords:

New media
Instructional design
Media-based instructional model
Implicit learning

There's always a good deal of demand for new instructional models, especially the kind of models that are empirically tested and statistically validated, that is, scientifically proven to work. But when models are also experiencing with either new, outlandish and/or old, dusty learning theories, things can easily become interesting. While literature and research continues to pile up on popular learning theories mostly revolving around learning experiences and MOOCS – which seem to be the newest trend – most tend to forget or ignore that learning is, first of all, intrinsically fun and it's the kind of fun which is innate. This article aims to provide not only evidence of a partially-validated instructional model based on new media, harnessing the power of a dusty learning theory – implicit learning, but also a guide on how the instructional model should be replicated and used by educators.

Zusammenfasung

Schlüsselworte:

Neue Medien
Lehrendesign
Medienbasiertes Lehrmodell
Implizites Lernen

Es gibt immer viel Nachfrage nach neuen Lehr-Modelle, vor allem die Art von Modellen, die empirisch getestet und statistisch validiert sind, das heißt wissenschaftlich erwiesen das sie wirken. Wenn aber Modelle im kontakt mit neue, fremdartige und/oder alte staubige Theorien kommen, das kann leicht interessant werden. Während Literatur und Forschung weiter auf beliebte Lerntheorien anhäufen, meistens revolvieren sie rund um Lernerfahrungen und MOOCS - welches der neueste Trend zu sein scheint – die meinsten neigen zu vergessen oder zu ignorieren das Lernen ist, vor allem, Eigen Spaß und es ist die Art von Spaß die inhärent ist. Dieser Artikel zielt darauf ab, das es nicht nur Hinweise auf ein teilweise validierten Lehrmodell auf Basis neuer Medien bietet, waren es die Leistungen einer staubigen Lerntheorie nutzbar macht - implizite Lernen, sondern auch eine Anleitung, wie man das Lehr-Modell von Pädagogen wiederholt und Gebraucht werden kann.

1. Conceptual framework

In a previous article (see Schwartz, 2017) I was arguing how building a certain new media-based instructional model can harness the potential of implicit learning as it is defined by Reber (1989). In order for learning to be considered implicit, it has to be characterized by „two critical features: (a) the process must be unconscious and (b) it yields abstract knowledge" (Reber, 1989 pp. 219).

Since the term *new media* is semantically self-sufficient and requires no further defining, I can continue by presenting what we mean here by *instructional model*: a versatile methodological framework, following a certain instructional strategy, made up of core and auxiliary components, anchored both in theoretical fundaments and empirical findings.

The instructional strategy revolves around harnessing the potential of implicit learning. But why go through the trouble of tackling instruction from such an angle? It is exactly because implicit learning occurs *unconsciously*, which means that the learner will not experience any perceived fatigue as a result of the activity. And while this strategy can prove troublesome and requires considerable investment into identifying what actually works and what is efficient, toppled with a less degree of efficiency compared to straightforward instructional models, the payoff is the lack of perceived fatigue while learning.

Of course, this angle brings about another problem: can this activity actually be called learning? I would argue that it does, if we just consider learning as an activity aimed at acquiring new knowledge – and I would continue by adding – regardless of the kinds of knowledge acquired.

Allow me a slight change of perspective for a moment: while some of us enjoy taking long walks or doing sports in our spare time, activities involving learning still make up the bulk of our leisure time. Reading, watching television or motion pictures or engaging in new media are all learning-centered and/or learning-driven activities in the sense that the recreational component of the activity revolves around the satisfaction we get from *learning*: what happened to the character in the book we're reading, what our distant relatives were up to during their weekend trip when surfing social media, or what new mechanics will our video game reveal after passing the current stage.

According to the Bureau of Labor Statistics, in 2016 „watching TV was the leisure activity that occupied the most time (2.7 hours per day) accounting for just over half of leisure time, on average, for those aged 15 and over" (ATUS, 2017, pp. 2).

Since the instructional strategy of the model is centered on the benefits of implicit learning and considering the widespread use of new media for recreational purposes, the model follows a pretty straightforward approach: to use new media in such way as to ensure the implicit learning of what is intended.

The finality of the instructional model can be whatever the educator requires: either a competence, skill, set of skills, informational content – virtually anything the educator wants to teach and can find relevant media for. The model's design will be obviously shaped by its aimed finality, but only at the levels of content selection and distribution within the model.

Since the question of *what to teach* has been answered, the obvious question that needs to be addressed next is: *how to do it.* This is where the model begins to shine, since a quick answer for that would be: *you don't really need to*.

Most of us tend to forget that our primary aim as educators is – or should be – to ensure learning of intended content occurs. Whether or not it occurs mainly and as a direct consequence of us teaching is irrelevant as long as we can adjust our methods in such way as to eliminate as much of the *teaching* – as we all know it – as possible. Why try to avoid teaching? Simply because it's difficult and requires not only solid training and experience but a fair amount of talent, which – speculating – may be one of the reasons why good, effective teachers are in such short supply, even after following years of training and lifelong learning programmes throughout their careers.

2. Introducing FMIM

In the case of this particular conceptual model which we will refer to as the F*ormative* M*edia* I*nstructional* M*odel* (FMIM) the framework is based on principles derived either from theory, empirical study results or both.

Its structure implies that the educator studies and deconstructs competences, skills or content into core components which can be stressed through use of various media content throughout the instructional programme.

The three-layered model is based on the following elements: cognitive layer – concepts, information and skills; types of content layer – conceptual stressors and integrators; dynamics layer – expressed in cognitive tension and tension breaking points (Fig. 1).

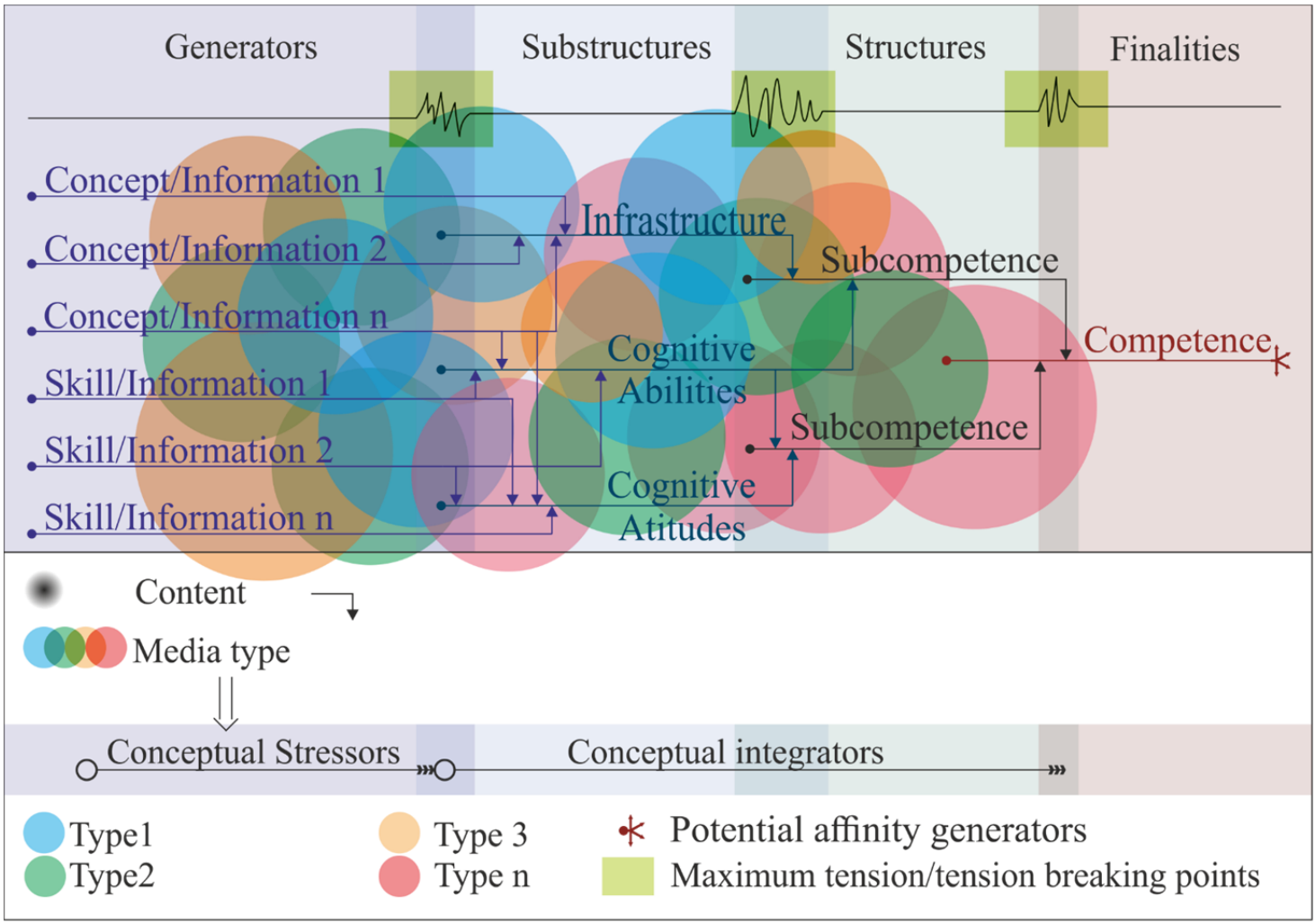

Figure 1 *– FMIM model diagram*

Generators represent the first identifiable, independent type or class of information, skill or concept that composes the substructures of a competence, content or pretty much anything that could be considered a finality of a learning endeavor. Thus, some of the generators of dance – as a competence – could be rhythmic perception skills, motor skills, breathing control skills etc. – and they are only a fraction regarding a single aspect of what a competent dancer is skilled to do and understand.

Substructures and structures represent sets of generators that allow for various fractions of the competence to be formed. For instance, a substructure of critical thinking as a competence may be a certain degree of cynicism when confronted with claims or the ability to accurately analyze and interpret information, while a whole structure of the same competence is the entire attitude or ability that set the premises needed for critical thinking to emerge.

Since today's technology allows for delivery of the same content packaged in various media types, conceptual stressors refer to a certain content packaged in a certain media type. Conceptual stressors are used to stress various generators while conceptual integrators target whole, already coagulated substructures, structures or the whole competence. For instance, let's assume that one of the generators we are trying to stress is the concept of empathy, as an independent concept required later, in conjunction with other concepts, to form the cognitive scaffold of a certain competence for social workers. The first conceptual stressor may be a text silver-lining the concept, the second a short video, the third a motion picture or a recorded course on related topics touching empathy and the fourth, a video game which demonstrates the concept at a whole different level.

Conceptual integrators tend to cover whole structures or substructure, making it easier to integrate individual concepts into dynamic and interactive constructs. Since motion pictures, television series and video games usually do a fairly good job at delving deep into the problematic of the theme they revolve around, can constitute conceptual integrators for many instructional purposes.

The structure of the model presupposes a gradual introduction of concepts, masked by various media. The masking of concepts accounts for at least two effects if implemented adequately: (a) ensures the learner's engagement by means of intrinsic motivation and (b) cumulates cognitive tension. Needless to say, in order to obtain the first effect, the material has to be intrinsically interesting and/or engaging. In order to obtain the second effect, a two-step progression needs to be carefully integrated the design: (1) up to a point, the succession of media presented must be seemingly unconnected until it reaches (2) a point where it starts revealing a subtle, perceivable silver-lining.

After the second step has been reached, the educator can introduce the concept formally or via other media. At this point, the learner has presumably accumulated enough tacit knowledge to ensure that formal introduction of the concept comes as a satisfactory revelation.

3. Building a formative media instructional programme FMIP:

I encourage educators to design and apply dedicated programmes according to their learner's formative needs. Conceptual stressors, although fairly hard to identify, a process that, at this point requires a trial-and-error approach, are present throughout the internet, mostly in the form of entertainment media.

The design process of a FMIP requires nine distinct steps:

1. Identifying, and defining the competences or content intended to be learned. This process ensures that the second step will be carried out adequately.

2. Identifying the structure and composition of the targeted competence or content. During this step, the competence or content is dissected into core and auxiliary components which will help in the identification of the generators.

3. Identifying and selecting generators. During this step, the generators will be selected according to: (a) their weight and importance within the competence and (b) the quantity of available content to select and transform into conceptual stressors.

4. Identifying the content. This step is probably the most troublesome and represents a cornerstone in the design process. If the content selected does not adequately and specifically stress what is intended, the whole programme might yield little to no results at all. However, if the previous steps were conducted carefully, and the generators were appropriately isolated, finding content transformable into conceptual stressors is merely a matter of time and effort.

5. Selecting the content. This step is meant to ensure the proper classification of identified content in different categories according to the learning needs, programme length, target population and difficulty level. What I mean by difficulty level is the distance or proximity between target population's current level of understanding and the level of understanding required for the emergence of the targeted competence. The resulting classification will primarily yield two types of content: conceptual stressors and conceptual integrators.

6. Distribution of content. Conceptual stressors and integrators will each be separately distributed in such way as to ensure a progression aimed to facilitate the emergence of effects mentioned in the previous sub-section.

7. Setting up an initial challenge or problematization. The initial problem will take the form of a conceptual incentive, namely content that will start to stimulate, preferably, a group of generators containing a dominant one. The main requirement of this content is to carry emotional weight for the learner, since it may boost interest on the subject/topic.

8. Ensuring the build-up of cognitive tension. By design, the distribution of content should be checked order to ensure that the

learner builds cognitive tension as progressing through the content.

9. Ensuring the existence of sessions meant to formally introduce concepts. By design it's intended that formal introduction of concepts, notions or terms to act as revelations which will release or partly release previously accumulated tension. However, tension accumulation may be contextual, and its measurement requires permanent contact with the learner, meaning that in some cases, the formal introduction may be best carried out earlier or even later than anticipated, according to the feedback perceived by the educator.

4. Governing concepts of the model

The essence of the model consists in the creation of a completely informal framework, aiming in fact to form competences specific to formal education, through strategic channeling of the spontaneous media intake. In the attempt to mimic as closely as possible natural informal education environments, the concepts governing the model are identical to some characterizing informal education activities: inherent curiosity, intrinsic motivation, natural learning, familiarity with the means of education and freedom of preferential selection, metacognitive self-regulation and affinity spaces.

Inherent curiosity inevitably implies intrinsic motivation fueling exploratory approaches, thus being directly responsible for seemingly effortless investigation, together ensuring an auspicious psychological environment for learning.

The importance of familiarity in learning has been empirically highlighted in several studies (see Reynolds, Sitharaman, 2000; Brown, 2006). By association, it is emphasized that learning through familiar means will also provide the resources needed to assimilate different means, and preferences will in most cases be those with which the learner is familiar (Shaffer, et al., 2016).

Freedom of preferential selection of learning means not only adequately addresses differences in learning styles (Schmeck, 2013), but also to ensures the avoidance of perceived irrational forms of constraint on educational means from a learner perspective. The freedom of choice of educational means is limited in fact only by the availability and/or knowledge of their existence and utility. In the absence of an explicit prohibition in the choice of means, one can't form a perception of constraint, but an absence of possibility at most, which does not involve the negative emotional valences associated with perceptions of constraint.

Metacognitive self-regulation (see Khosa, Volet, 2014, De Backer, Van Keer, Valcke, 2014) implies the freedom to set and explore one's own learning strategies, either individually or at group level, preferred, indispensable for the temporal efficiency of the amount of information retained or the level of skill. When stimulating an exit from the comfort zone and/or attempting a new approach or strategy, there is a risk of perceived constraint or pressure from the learner, which, depending on personality, may result in reactions from very different to diametrically opposed.

Affinity spaces are of crucial importance (Gee, 2005; Neely, Marone, 2016; Jackson, 2016). These are spaces for the development of knowledge, through socialization and learning in the virtual space, based on common interests, namely affinities, acting as knowledge-generating environments. These immaterial structures appeal to interests, often embodied in real passions for various subjects, and in optimum conditions possess a huge transversal or interdisciplinary capacity. Motivated by contributing to the level of knowledge of the whole space, its members foster the formation of a meritocratic system but without hierarchies or requiring inclusion as a member in order to contribute. They form autonomously and develop to the point of specialization of the participants in their niches or their migration to other subjects of interest, often derived from the knowledge acquired from the affinity space.

The governing concepts of the model act as methodological guidelines to be followed when developing FMIPs. Since they define the philosophy of a conceptual model, the success of the resulting FMIP depends to a large extent on how the designer manages to accommodate and exploit them.

5. Empirical evidence of a working FMIP

The conceptual model was used for designing an instructional programme aimed at developing critical thinking.

5.1. Research methodology

A quasi-experimental study was conducted on a gender and age homogenous sample of 271 high-school students from four educational institutions in Arad, Romania.

Hypothesis of the research: the participation within the FMIP predicts a significant increase in critical thinking.

Even though the participants were randomly assigned, the educational institutions were selected according to the criterion of access to the required technological means hence the study is referred to as quasi-experimental.

The study was structured in three phases: (1) pre-experimental assessment; (2) implementation of the FMIP and (3) post-experimental assessment. The experimental phase lasted for two months and two weeks.

The assessment tool used was comprised of a critical thinking test, an adaptation of the Watson-Glaser critical thinking appraisal (see Watson 1980; Wilson, Wagner, 1981; Hassan, Madhum, 2007).

Since the FMIP's design presupposes free involvement within the programme, the control and experimental groups couldn't be assigned randomly and were thus assigned according to participation, with the control group not choosing to take part within the programme.

5.2. Research results

The experimental group was comprised of 136 participants 50,2% of sample, while the control group totaled 135 participants 49,8%.

Since the criterion of assigning groups risked yielding distorted results, a regression analysis was conducted on first

instance test score differences in relation to participation in order to check for biases (Fig. 2).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,120[a]	**0,14**	**0,11**	,498

a. Predictors (Constant), ScorGC

Figure 2. *Participation bias reflected in first instance testing scores*

As shown above (Fig. 2) a bias was indeed observed, R=.120, but it only accounted for 1.1% to 1.4% the increase in scores obtained in the first instance testing.

Regression analysis conducted on scores obtained in the second instance of testing – post-experimental – indicates that the FMIP accounted for 18.2% to 18.5% increase in scores (Fig. 3), thus confirming the hypothesis that the programme predicts a significant increase R=.430, in critical thinking.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.F Change
1	,430[a]	**0,185**	**0,182**	4,463	,185	61,166	1	269	,000

a. Predictors, Participare

Coefficients[a]

Model		Unstandardized		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	24,434	,383		63,852	,000	23,680	25,187
	Participare	**4,240**	,542	**,430**	7,821	,000	**3,173**	**5,308**

a. Dependent Variable: ScorRGC

Figure 3. *FMIP (Participare) as predictor for increase in test scores*

As indicated above (Fig. 3), obtained test scores were increased by 3.1 to 5.3 points for the experimental group.

No significant correlation was observed for scores obtained by the control group in the pre-experimental, compared to post experimental testing sessions.

5.3. Research limitations and methodological issues

Since the model's design implies voluntary participation, random assignment of control and experimental groups poses a problem in the sense that even after changes in initial testing scores are taken into account when calculating the programmes efficiency, at least one variable still remains uncontrolled: the affinity or readiness for learning in general of the participants who choose to get involved in the programme. This means that until a better methodology is designed for testing FMIPs, results will be impacted by this variable and its impact is, according to this research design, unquantifiable.

Conclusion

Since the increment in scores was in the 18% pool, given the circumstances of trying to develop such a vast competence as critical thinking in such a short time, without employing conditionality in terms of rewards or penalties for either participation or performance, I could argue that FMIP can be considered a success. It yielded formative results without any perceived effort from the learner, by merely leading the learner's media intake on a formative path.

Under these circumstances, we can only consider the programme ineffective if we assume it prevented other, more formative activities from taking place in the allocated timespan or if the learner perceives the programme as it is – an instructional activity – and not a recreational one.

While the conditions which ensure the programme is perceived as an informal or recreational activity exist, the FMIP can be considered a viable candidate for a tool with the purpose of educating without instructing.

Surely, both the conceptual model and the FMIP developed here require improvement as does the methodology for testing its effectiveness. Hence further attempts to validate – or even invalidate – the model are greatly encouraged since we have no need for perfecting ineffective models – too many educational systems seem busy doing it already.

What I feel we need are more alternatives to reaching our goals as educators and since so much information is now at a mouse click's distance, it would be a waste not to exploit it to our ends and thus, the learner's benefit.

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Factors which Influence the Involvement of the Family in their Children's Education at the Beginning of the Romanian Primary Education

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Research article

Factors influencing the Family Involvement in Children's Education at the Beginning of the Romanian Primary Education

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Abstract

Keywords:

Family involvement
School-family partnership
Primary education

We aim to find the main factors that influence the family level of involvement regarding the children's education and in school life at the beginning of the Romanian primary education. The results of this investigation are useful for educators, counselors and school principals interested in applying the effective strategies in order to increase the family level of involvement regarding the children's education. We were interested in finding out if there are significant differences regarding the family involvement at school or at home, given the living environment of the participants. The geographic area where the participants live and their professional status were the main factors considered during the investigation. We have found that most of the participants are moderately involved in their children's education. The results obtained both in the rural and urban areas, help us to conclude that the common efforts of the school and family are necessary in order to consolidate the school-family partnership and increase the family participation in school activities.

Zusammenfasung

Schlüsselworte:

Familienbeteiligung
Schule-Familien-Partnerschaft
Grundschulbildung

Unser Ziel ist es, die wichtigsten Faktoren, die den Grad der Einbindung der Familie in der Bildung der Kinder und Primarschulbildung in Rumänien zu untersuchen. Die Ergebnisse dieser Untersuchung sind nützlich für Lehrer, Schulberater und Schulleiter interessiert bei der Anwendung wirksame Strategien Einbindung der Familie in der Bildung der Kinder zu erhöhen. Wir wollten herausfinden, ob es signifikante Unterschiede im familiären Engagement in der Schule oder zu Hause gibt, wenn man die Lebensumstände der Teilnehmer berücksichtigt. Das geographische Gebiet, in dem die Studienteilnehmer leben, und ihr beruflicher Status waren die Hauptfaktoren, die während der Untersuchung berücksichtigt wurden. Wir haben festgestellt, dass die meisten Teilnehmer aktiv an der Erziehung ihrer Kinder zu Hause beteiligt sind. Die Ergebnisse, die sowohl in ländlichen als auch in städtischen Gebieten erzielt wurden, helfen uns zu dem Schluss, dass die gemeinsamen Anstrengungen von Schule und Familie notwendig sind, um die Schul-Familienpartnerschaft zu stärken und die Familienbeteiligung an Schulaktivitäten zu erhöhen.

1. Introduction

It is widely agreed that an effective family involvement in children's education is needed at the beginning of the primary education. Families are important educational agents with a large influence on children's development and school evolution. (Pancu & Bocos, 2016; Sreekanth, 2011; Vahedi & Nikdel, 2011; Porumbu, Necsoi & Beldianu, 2013). A high involvement of the family at home and at school is associated with the increased motivation for learning, positive school results, and high self-esteem. We consider that this investigation is very useful in understanding the educational realities that significantly influence the quality of family involvement in children's education.

2. Theoretical foundation

We can define the family involvement in children's education as a set of constructive behaviors and positive parental practices involved at home, at school and within the community, in order to provide each child with the best educational opportunities. J.L. Epstein et al. (2009) have identified six types of family involvement: parenting, communicating, volunteering, learning at home, decision making, and collaborating with the community, emphasizing that each type of involvement can be enhanced by different partnership practices. Studies on parental involvement in children's education show that the factors that significantly influence the school-family cooperation are: employment status, marital status, family size, and the parental educational level. (see Fantuzzo, Tighe, & Childs; 2000, Epstein et al. 2009; Porumbu & Necsoi, 2013). According to J. L. Epstein et al. (2009), research on school, family and community partnerships reveals that the "single parents, parents who are employed outside the home, parents who live far from the school, and fathers are less involved, on average, at the school building, unless the school organizes opportunities for families to become involved and to volunteer at various times and in various places to support the school and their children. These

parents may be as involved as other parents with their children at home". Table 1 includes positive behaviors that could be associated with an effective parental participation in children's education, at home, within the community, and in different school contexts. (see Fantuzzo, Tighe, & Childs; 2000, Fantuzzo, McWayne, Perry & Childs, 2004; Epstein et al., 2009).

Table 1. *Examples of positive behaviors of the families actively involved in their children education*

Dimensions of family involvement	*Family involvement at home or within the community*	*Family involvement in school activities*	*Family involvement in maintaining an effective school-family communication and cooperation*
Effective parental practices	- Spending time with children at home or within the community in order to improve their knowledge and abilities, including their learning skills; - Manifesting enthusiasm in learning and positive attitudes towards school and educators; - Providing attractive educational materials and creating educational contexts for children; - Applying effective parenting strategies; - Analyzing children's work and encouraging the children's learning efforts.	- Volunteering and adopting positive and cooperative attitudes in relationships with other parents; - Attending school activities (i.e., trips, workshops, fundraising activities etc.) and participating in the process of decision-making; - Offering support to educators and other parents.	- Attending conferences with the teacher; - Teacher-parent discussions by phone, by written notes or face to face, about the child's interests, learning behaviors, difficulties, accomplishments, etc. - Manifesting openness and trust towards the teacher; - Establishing the content of the learning activities that could be realized at home in order to improve the child's educational experience and their educational progress.

According to Sreekanth (2011), the "parental involvement is subjective in nature and difficult to assess". At the same time, it is very useful for the educational practitioners and researchers to understand the factors influencing the family participation in children's education and assess the family involvement at home and in different school contexts.

3. Research methodology

This quantitative research was used as the main data collection Family Involvement Questionnaire (FIQ). Family Involvement Questionnaire (FIQ) is defined by its authors as a multi-dimensional scale that can be used to assess the family involvement in early childhood education. The three dimensions of parent involvement assessed through the FIQ are Home-Based Involvement, School-Based Involvement, and Home-School Conferencing. The scale contains 42 items and was designed in a 4-point Likert format (Fantuzzo, McWayne, Perry & Childs, 2004).

In the Romanian educational system, the preparatory grade is a part of the primary education stage and is considered a school year of preparation with the educational demands. The questionnaire was applied to a sample of 227 parents. Their children were enrolled in the school year 2016-2017 into the preparatory grade. 170 participants live in urban area, while the other (57) live in rural area of Cluj County. All the respondents are aged between 21 and 60, and their average age is 35.21 years. The participants live in the urban and rural areas of Cluj County. The purpose of the study is to understand the educational realities that may influence the quality of the family involvement in children's education. We were interested in finding the answer to the following questions:

• How involved are families in children's education at the beginning of the Romanian primary education stage?

• Are there any differences between the levels of family involvement in the children's education living in the rural and urban areas?

4. Results

During the discussions with the teachers involved as partners in our research, we have established that most of the parents who are highly involved in the children's education have a medium or high educational level and a good socio-economic status. Figure 1 contains the details regarding the involvement levels of the families in children's education at home and in school life. We can see that

most of the parents are moderately involved in their children's education.

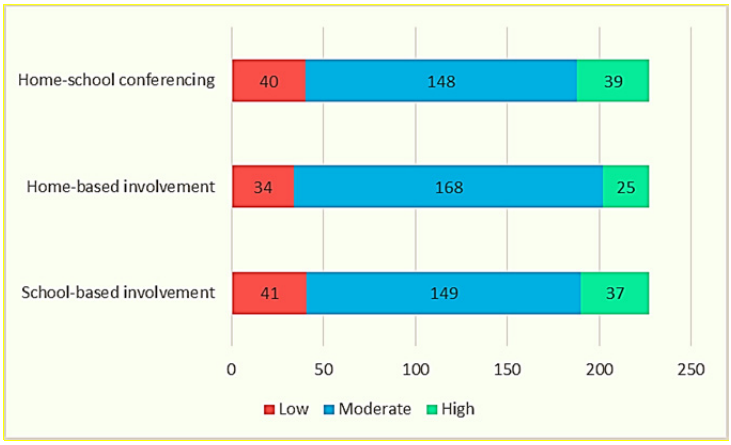

Figure 1. *Family involvement at the beginning of the preparatory grade*

The Results in Figure 2 show that most of the participants in the urban areas (67.06% of the respondents living in the urban areas) are moderately involved in school activities. The most of the respondents in the rural areas (61.4%) have obtained scores that can be associated with a moderate level involvement of the family in school activities. 22.81% of the participants to whom high levels of family involvement in school life were associated, are living in rural area. At the same time, 14.12% of the participants in the urban area are highly involved in school life.

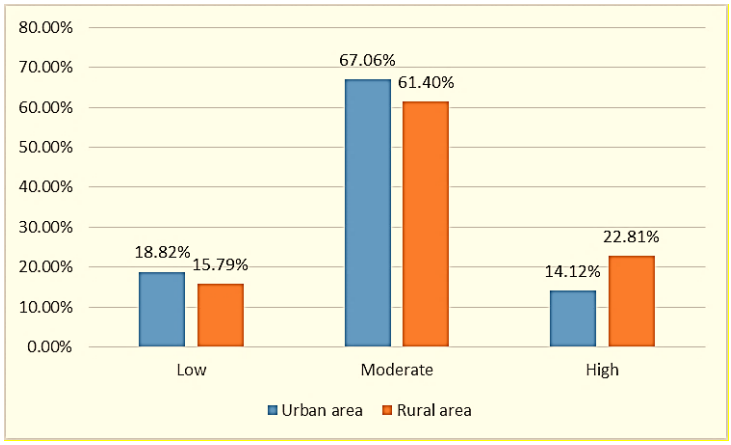

Figure 2. *Comparative results obtained in the urban and rural areas for the "School-based involvement" subscale*

Figure 3 includes information about family involvement in the home-based children's education. Most of the participants who live in urban areas (77.65%) are moderately involved in the home-based educational activities. At the same time, 63.16% of the participants in the rural area are moderately involved in the children's education outside the school.

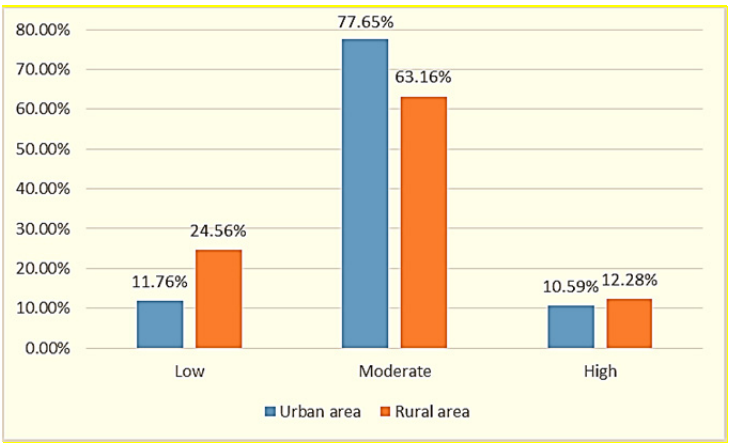

Figure 3. *Comparative results obtained in the urban and rural areas for the "Home-based involvement" subscale*

Most of the parents in both the rural and urban area are moderately involved in building effective teachers relationships (see Figure 4). The percentage of the participants in the rural area, who are highly involved in maintaining a high-quality cooperation between family and school (24.56%), is higher than the percentage of the highly involved urban participants (14.71%).

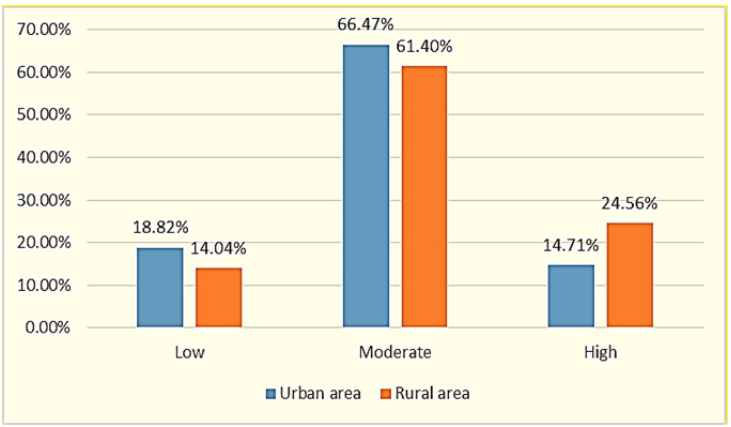

Figure 4. *Comparative results obtained in the urban and rural areas for the "Home-school conferencing" subscale*

The results in Table 2 show that in the urban areas, there is a greater involvement of the family in the home-based children's education. At the same time, in urban areas, efforts are necessary to increase the degree of family involvement in school life, and the quality of school-family partnership.

Table 2. *Geographic area where the highest average score was obtained*

Size of family involvement	Living environment of the participants
School-Based Involvement	Rural area
Home-Based Involvement	Urban area
Home-School Conferencing	Rural area

Most of the parents who are highly involved in their children`s education at home, in school life, and in maintaining a good cooperation with the teachers are employed.

5. Discussions

The survey described in this paper identifies different levels of family involvement in children's education, for each size of family involvement that was assessed during our research. The obtained results are useful for school principals and teachers interested in increasing the family involvement in children's education. Some of the limits of this survey are the low number of participants and the fact the participants live in a single county of Romania. Future surveys should be implemented on a larger sample of participants from all major geographical areas in Romania.

Conclusions

The main goal of the survey was to determine how parents involved are in children's education during the preparatory grade. We consider that the research on methods of increasing the family involvement in children's education should be continued in order to provide each child enrolled in Romanian educational system with the best educational opportunities. At the same time, the teachers should encourage parents to become real partners in children's education and apply effective strategies in order to strengthen the school-family partnership.

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Gender Differences in Cyber and Traditional Bullying

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Research article

Gender Differences in Cyber and Traditional Bullying

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Abstract

Keywords:

School violence
Bullying type behavior
Victimization
Cyberbullying
Gender role

School violence/bullying is a complex phenomenon that exists also in school communities in Romania, especially at secondary school level, which may affect the victims for a long time, sometimes through their whole lives, through high levels of depression, anxiety or behavior problems. The phenomenon of bullying and cyberbullying is present both in girls and boys, and has a more and more alarming rate of growth. Differences between boys and girls regarding bullying/ cyberbullying have been highlighted in several studies in different countries and cultures. In this study we analyzed the manifestation of the phenomenon of bullying and cyberbullying in a gender perspective, in students of secondary schools in Mures county, based on the previous two surveys conducted among students in Mures county.
Results showed differences regarding the roles of the process of bullying, boys being harassing/ aggressive more often than girls, but significant differences in being harassed by bullying or cyberbullying were not found. The phenomenon of bullying/ cyberbullying is more and more present among secondary school students, with no major differences regarding the gender of the students.

Zusammenfasung

Schlüsselworte:

Schulische Gewalt
Mobbingverhalten
Veropferung
Cybermobbing,
Geschlechtsrolle

Die schulische Gewalt ist ein komplexes Phänomen, das auch in unseren Schulgemeinden existiert, besonders in der Sekundarstufe, und das das Opfer eine sehr lange Zeit beeinflussen kann und ihm manchmal lebenslange Beschädigungen durch ein erhöhtes Depressionsniveau, Angst oder durch Verhaltensstörungen.verursachen kann.

Das Phänomen des Bullyngs/ Mobbings und des Cyberbullyings/ Cybermobbings ist sowohl bei den Mädchen als auch bei den Jungen anwesend und stellt einen alarmierenden wachsenden Prozent dar. Die Unterschiede zwischen Mädchen und Jungen betreff Bullying/ Cyberbullying wurden in mehreren Studien in verschiedenen Ländern und Kulturen hervorgehoben. In dieser Studie haben wir aus der Gensicht die Vorstellungsform des Phänomens bei den Sekundarstufenschülern aus dem Kreis Muresch untersucht.Ausgangspunkt sind zwei Untersuchungen , die früher mit den Schülern der Sekundarstufe durchgeführt worden sind. Die Ergebnisse haben Unterschiede hinsichtlich der Rollen in Rahmen des Bullyindprozesses betont, Jungen sind eher agressiver/ belästigender als die Mädchen, aber es muss erwähnt werden, dass bedeutende Unterschiede in Bezug auf die Rolle des Mobbingsbelästigten nicht gefunden worden sind.

Bullying ist unter den Schülern der Sekundarstufe immer stärker, ohne einen riesigen Unterschied in Hinsicht auf das Schülergeschlecht.

1. Introduction

Bullying is the use of a higher force used in order to influence or intimidate someone (Olweus, 1993). Is repeated and intentional behavior where an abuser persecutes, injures, intimidates the victim verbally, relationally and/ or physically. This phenomenon occurs when a child is labeled, teased, threatened, ridiculed and given offensive replicas, and sexual comments are made against them in their group of acquaintances or colleagues. Sometimes these verbal conflict becomes physical attacks. Generally, the bullying manifested among boys is more visible than the one credited to girls. Manifestation of bullying in teenage girls is less visible, having a direct active and aggressive verbal behavior such as cursing, calling them names, direct or indirect threat, defamation (Şoitu et al., 2001). This type of verbal violence affects the victim psychologically. In boys, violent behavior is visible, taking the form of physical aggression such as hitting the victim.

2. Theoretical Foundation

Research on bullying type behavior in school (Schott et al., 2017) can tell us how society can influence young people`s behavior. The phenomenon of bullying occurs repeatedly over time, is initiated by one or more individuals and directed towards another, one that becomes the target of intimidation, unable to defend themselves in that context, the ratio of forces between the aggressor(s) and the victim(s) not being equal.

School violence is a complex phenomenon that exists in school communities in Romania, especially at secondary school

level, which may affect the victim for a long time, sometimes their whole lives, through high levels of depression, anxiety or behavior problems. The consequences of this kind of bullying type aggressive behavior will lead to the isolation of target. Children affected by such aggressive behavior from their colleagues get a lower self-esteem, feel discouraged, do not want to go to school, sometimes become aggressive with themselves or with others. Approaching the phenomenon of bullying/ cyberbullying, based on sexual orientation and gender identity, it is important to be treated on levels of understanding, interest and by every age group. There are studies made in Ireland, showing the age of 11 and 12 being the one when some students begin to define themselves as having a different sexual orientation than most.

Targets of bullying are school students that are „different" from others, are believed to belong to groups or classes considered to be lower, such as children with limited financial possibilities, students with disabilities, children of other ethnicities. Violent behavior is not accepted, although it exists. Bullying/ cyberbullying is a tolerated phenomenon, being part of daily school life; this phenomenon can occur both inside and outside of school, through social networks, as cyberbullying.

With the staggering development of technology, also in our country, as in western countries, the problem of bullying in Romanian schools has worsened, becoming a wider problem, called cyberbullying. In schools in Romania we are beginners regarding detection and intervention in matters of cyberbullying. We heard that there is cyberbullying in other countries, but we do not know what to do with what we face in our schools. Some studies (Raskauskas & Stoltz, 2007, Li, 2005) show that cyberbullying is an extension, a continuation of traditional bullying. But other studies (Green, 2006) let us believe that cyberbullying is different from traditional bullying because it overwrites some of its characteristics, such as the fact that in traditional bullying the victim knows the perpetrator, in traditional bullying there is a difference between the physical strength of the aggressor and the victim, and it takes place usually around or in schools.

Although there are some difficulties in creating a direct comparison, preliminary results indicate that the phenomenon of bullying and cyberbullying is more prevalent in the US than in European countries.

In a study by Save the Children Foundation in Romania, under the Helpline developed inside the Sigur.info project, within two years over 620 calls and complaints were received from both children and adults. Among the most serious problems reported are harassment and abuse on the Internet (209). Cyberbullying occurs in forms of verbal aggression, calumniation, stealing personal data. Romania is the country with the highest incidence of harassment in Europe in terms of cyberbullying and online abuse. EU Kids Online II study shows that 13% of children in Romania were harassed online, and 41% of children said to be harassed in any way. Of parents assessed across Europe, Romanians are those that mostly underestimate the risk of exposing their children to „sexting" type of messages, only 6% of them declare this happening to their children.

A study conducted by EU Kids Online in 2014 has shown that, compared to 2010, the occurrences of the cyberbullying type harassment has increased, among both girls and boys. If in 2010 the number of harassed boys and girls was similar, in 2014, the number of harassed girls is higher (21%), compared to boys (14%).

A fairly recent study in 2006, conducted by Quing Li, has shown that, of a number of 264 students surveyed, about half were victims of bullying, and one in four has been abused by the means of electronic communication. Half of the teens surveyed knew their abusers. The study also revealed a significant difference in behavior between the sexes, boys being more likely in the position of bully/ cyberbully type aggressors than girls. (40.8% boys, 27.8% girls). Regarding the role of a victim in traditional bullying/ cyberbullying, boys and girls are victims in a very similar percentage (bullying girls: 44.4%, boys 53.7%).

Another study (Hoover et al., 1992) conducted in the USA shows that there was a quite large number of those who were victims of bullying or cyberbullying at some point during their adolescence. 72% of girls and 81% of boys have experienced a bullying type of aggression.

Several specialists (Keith et al., 2005) tell that girls are more likely to engage in cyberbullying than boys, teenager girls using verbal aggression frequently. These studies bring it to our attention that the gender difference is an important factor in understanding both the phenomenon of cyberbullying and the bullying type of aggression.

Thus, in this study we try to assess the phenomenon of bullying and cyberbullying among students from Mures, from a gender role perspective.

3. Research methodology

3.1. Research design

In this paper we analyzed the manifestation of the phenomenon of bullying and cyberbullying in the gender`s perspective, in students of secondary schools in Mures county. In these studies have investigated generally how children understand both the interference (Smith et al., 2002) and the differences between the characteristics of the phenomena of harassment, aggression, bullying, cyberbullying, both in and outside school. Gender differences, regarding the aggressive behavior of bullying and cyberbullying were investigated in two separate studies. This study is both quantitative and correlational. I used Opinion Based Research Methods, during this study. I applied questionnaires to middle school students from Mures County in order to learn their experiences and attitudes towards the two phenomena, bullying and cyberbullying. The aim of this study was to evaluate the differences between girls and boys in terms of their behavior and their attitudes towards the two phenomena.

3.2. Participants

Traditional bullying was assessed in 107 students, aged 10-15. From a gender perspective, the total number of participants were males 56.1% and females 43.9%. Background: 60.7% urban and 39.3% rural. The research was conducted during September-

November 2016, in schools of Mures County.

Table 1. *Description of participants from the viewpoint of gender difference*

Number of participants	Percent	aria of residence
60 girls	56,1%	60.7% urban
47 boys	43,9%	39.3% rural

Cyberbullying and its ways of manifestation have been studied in a sample of 175 students, aged 10-15 years. From a gender perspective, the total number of participants were 91 males (52%) and 84 females (48%), background: 58.3% urban and 41.7% rural. The research took place in April 2017, during the crisis called „Blue Whale" in schools in Mures County.

Table 2. *Description of participants from the viewpoint of gender difference*

Number of participants	Percent	aria of residence
91 girls	52 %	58.3% urban
84 boys	48%	41.7% rural

The sampling was non-randomized, pseudorandomized or of convenience, using participants that were available. This situation was created by practical considerations. Participants were asked to respond in writing.

3.3. Measures:

This paper uses the results of two recent studies and highlights only the aspects that relate to gender differences. In the two studies were applied two questionnaires as the main source of data collection. A first questionnaire, applied to a number of 107 students, was aimed to assess traditional harassment regarding gender difference, the questionnaire containing 49 questions. We were interested in finding answers to the following questions:

- If the phenomenon of bullying is present in secondary schools in Mures County;
- What are the manifestations of this phenomenon in schools in Mures County;
- If there are differences in the phenomenon of bullying between girls and boys.

A second questionnaire that we applied targeted the phenomenon of cyberbullying and its forms of manifestation, destined for a target group of a number of 175 students, containing a number of 12 questions. We evaluated the forms of cyberbullying for boys and girls and the differences in roles of the victim and the aggressor between girls and boys.

For studying the bullying we have used questionnaires focused on the concept of bullying and cyberbullying, prepared by the CJRAE Mures team. In terms of the type of questions of the questionnaire for assessing bullying we used both open-ended questions and half-open-ended questions. The second questionnaire to assess the phenomenon of cyberbullying in schools we have only used closed-ended questions. For closed-ended questions we have used scales. Questions/ statements had answers on a scale from 1-5 (1 – very often, 2 – often, 3 – neither too often nor too rarely, 4 – rarely, 5 – never) participants choosing a number depending on their experience of traditional bullying and cyberbullying.

In present research we highlighted those aspects of the study that relate to the differences between girls and boys regarding the percentage and forms of manifestation of bullying and cyberbullying in Mures County Schools.

3.4. Procedure:

Both questionnaires were applied by psychologists in secondary schools in Mures county. We have chosen classes with average school results, students were selected from six secondary schools in both rural and urban areas. Questionnaires were completed in pencil by pupils in classes V, VI and VII.

Data from the questionnaires were processed quantitatively, using the statistical program SPSS22: descriptive analysis: percentage frequencies, bivariate correlations, open questions, they were processed through content analysis. In statistical analysis we used the simple correlation coefficient of Bravais-Pearson at a significance threshold of $p = <0.05$, Crosstabulation, Pearson Chi Squaret.

4. Results

The main objectives of this study was to determine the differences between girls and boys in terms of manifestations of traditional bullying and cyberbullying.

The presence of the phenomenon of bullying is highlighted and is present also in schools in Mures county, 65% of the surveyed children know the concept of bullying/ cyberbullying (describing it as aggressive behavior, intentionally shown by an older or stronger child, threatening, beating, contempting, cursing, hurting other children.) (Muresan & Porkolab, 2016). According to statistics, the phenomenon of cyberbullying is present in schools in Mures County.

The manifestation and the frequency of the phenomenon is as follows: 6.3% of the respondents were often deliberately excluded by their colleagues/ friends from conversations on social networks. Offensive messages were received in the last two months via the Internet by 10.3% of respondents, and 8% of them were deliberately humiliated by posting videos or photos without their consent (Porkolab & Mureşan & Mihai, 2017).

In terms of gender differences on how students feel in school, the results showed that girls feel strained in terms of their general condition in school, and declare that they have fewer friends than boys. The girls feel tension and boys feel more sadness.

Table 3. Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
GEN *Tension	107	100,0%	0	0,0%	107	100,0%

Table 4. *GEN * Tension Crosstabulation*

			Tension		
			0	1	Total
GEN	Feminin	Count	16	32	48
		% within GEN	33,3%	66,7%	100,0%
		% within tension	32,7%	55,2%	44,9%
		% of Total	15,0%	29,9%	44,9%
		Residual	-6,0	6,0	
	Masculin	Count	33	26	59
		% within GEN	55,9%	44,1%	100,0%
		% within tension	67,3%	44,8%	55,1%
		% of Total	30,8%	24,3%	55,1%
		Residual	6,0	-6,0	
Total		Count	49	58	107
		% within GEN	45,8%	54,2%	100,0%
		% within tension	100,0%	100,0%	100,0%
		% of Total	45,8%	54,2%	100,0%

1= tension YES

0 =tension NO

Table 5. *Chi-Square Tests*

	Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	**5,445[a]**	**1**	**,020**		
Continuity Correction[b]	**4,573**	**1**	**,032**		
Likelihood Ratio	5,511	1	,019		
Fisher's Exact Test				,031	,016
Linear-by-Linear Association	5,394	1	,020		
N of Valid Cases	107				

Table 6. *GEN * sadness Crosstabulation*

			m1		
			0	1	Total
GEN	feminin	Count	46	2	48
		% within GEN	95,8%	4,2%	100,0%
		% within sadness	48,4%	16,7%	44,9%
		% of Total	43,0%	1,9%	44,9%
	masculin	Count	49	10	59
		% within GEN	83,1%	16,9%	100,0%
		% within sadness	51,6%	83,3%	55,1%
		% of Total	45,8%	9,3%	55,1%
Total		Count	95	12	107
		% within GEN	88,8%	11,2%	100,0%
		% within sadness	100,0%	100,0%	100,0%
		% of Total	88,8%	11,2%	100,0%

Table 7. *Chi-Square Tests*

Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
4,343[a]	1	,037		
3,154	**1**	**,076**		
4,784	1	,029		
			,062	,034
4,303	1	,038		
107				

Table 8. *Differences between girls and boys*

	Pearson Chi-Square	Significance (2-sided)	Correction Yates
Gen vs. tension	5,445	.020	.032
Gen vs. sadness	4,343	.037	.076

Regarding absences from school (ideal setting for harassment), boys absent (ditch) more often than girls.

Regarding the behavior of the bully/ abuser, boys show more often the following behaviors than girls: hit or knock another child, humiliate/ embarrass other children, spread rumors about other children, destroy things of other children if it upsets them, push and jostle other children. Regarding the behavior of the victim, boys are often ridiculed by peers than girls, and feel they do not get so

many friendly behaviors from peers as the girls. The following behaviors were more often experienced by boys than by girls: to ask another child not to play with them, be threatened and hit by other children, be humiliated and ridiculed in public, to spread rumors about them, be beaten by other children.

Regarding interventions in cases of aggression, boys as well as girls agree that guards or other students interfere; teachers rarely do.

In the research on the phenomenon of cyberbullying, boys were more often victims of various fraudulent methods to obtain data, embarrassing information about them, which were later distributed online, but they were challenged more rarely to respond aggressively online than girls.

Table 9. *Differences in experiences of online world between girls and boys*

		Personal information use by other people	Challenges to aggressive behavior in online environment	Getting contacted by catfish people
Male	Pearson Corelation	-.158*	-.006	.079
	Sig. (2-tailed)	.040	.936	.269
	N	175	175	175
Female	Pearson Corelation	.282**	.361**	359**
	Sig. (2-tailed)	.000	.000	.000
	N	175	175	175

According to a study (Keith et al., 2005) girls tend to cause more severe aggressive acts online. But boys were more often contacted by catfish people (which claim to be someone who actually they are not).

5. Discussion

Regarding school bullying, according to our study, boys are slightly more exposed to it than girls, this depends also on which school they go to.

Regarding cyberbullying, girls and boys are exposed equally, identity of the bully or the victim may be hidden. The younger generation can easily be co-opted in misconduct in the virtual environment where there are no mental or moral limits or physical strength differences.

In 2016, the Child Helpline Association has registered more than 2,500 cases of bullying in Romania, most of the cases regarding physical violence, than verbal abuse, emotional abuse and relational abuse. Approximately 57% of the calls came from girls. Emotional bullying is more common among girls, while „physical bullying" is more present among boys.

Regarding the victims of the phenomenon, 43% of boys and 57% of girls have been victims of bullying worldwide, and 42% of boys and 58% of girls in Europe.

The problem is not the children's gender, it is more pressing that, in most European countries, over 50% of children are victims of bullying and cyberbullying. Prevention and intervention programs should be our future goals.

Girls being more empathetic can be one of the reasons why girls rarely get as aggressive as boys, empathy being a part of socialization in terms of gender (Rueckert & Naybar, 2008).

From research conducted at secondary schools in Mures County is noted that the phenomenon of bullying is more common in girls than in boys. Therefore, we can say that it is both a fact, but may be a traditionalist approach related to mentality and education. In Romanian tradition, in our culture for boys „being a man" means solving their own problems, hardly accepting help from those around him, family, teachers, counselor. Since education is implemented in partnership with parents, not only the school being accountable for prevention programs, the prevention and intervention must be carried out with the help of the parents so that they could learn to recognize manifestations/ symptoms of harassment their own children are subject of, in order to to fit their needs in crisis situations.

Both girls and boys frequently use social isolation as a method of intimidating the victim, by spreading different rumors using mocking words. So even though the child seems somewhat quietly withdrawn from school social life, behind that calm there can be a whole process of bullying.

The phenomenon of bullying that occurs in adolescence, if not halted by intervention programs, may create the premises of an aggressive bullying during adulthood, where victims can become perpetrators or remain in the role of a victim, being exploited by colleagues/ bosses at their working place. It can be said that the phenomenon of bullying can become a major social phenomenon that must be properly treated by specialists, since the first signs of its onset, during childhood.

Studies in Romania aimed to follow the presence of cyberbullying among young people, have shown that it exists in our midst, requiring the specialists` intervention in order to curb its negative effects. New studies in Mures county has proved the existence of cyberbulying among secondary school students, both in urban and in rural areas. Students` responses to questions applied through questionnaires show that students know the two phenomena of bullying and cyberbullying. It is important to continue studying ways of manifestation of the two phenomena among secondary school students, the way how social networks become dangerous when students become aggressive with each other. The study showed gender differences, meaning that girls are more aggressive than boys.

Conclusions

Bullying as a method of intimidation will take more and more the form of cyberbullying, because young people spend more and more time online, and interact less and less with each other in the physical environment (girls tend to have fewer and fewer friends in

the real world), and all more in the virtual environment, students saying they have more virtual friends than real.

The main conclusion of this study was that boys tend to be more aggressive directly, and were attacked, witnesses and victims of school bullying more often than girls. In some studies (Lagerspetz, 1988) noted that girls have used more indirect means of aggression, while boys tended to use direct means. Gender differences in verbal aggression were less pronounced. The social structure of peer groups was considered stricter among girls, thus facilitating the exploration of relations and injuring their victims by the indirect aggression of manipulation.

The phenomenon is alarming. Preteens are in a very fragile phase of personality development, they are very impressionable, and cyberspace effects can cause more severe trauma than the emotions and direct interactions with others.

As teachers and parents, we must make a stand, to know the best methods and modalities of the phenomenon`s manifestations, so we could be a real support for a problem as „real" as cyberbullying can be for the preteens of online environment.

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The Role of Independent Activities in Development of Strategic Learning Competences and Increase of School Performance Level, within the Study of High School Pedagogy

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Research article

The Role of Independent Activities in Development of Strategic Learning Competences and Increase of School Performance Level, within the Study of High School Pedagogy

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Abstract

Keywords:

Independent activities
Strategic learning
Competence
Collective reflection
Cognitive and meta-cognitive reflection

The experimental research performed by us with the purpose of exploring the possibilities of development of strategic learning competences and improvement of school performance of 11th grade students, pedagogical profile, specialisation in primary school-kindergarten teacher, falls in the category of researches aiming to make efficient certain didactical strategies by testing new action methods. In this proposed subject, which is of great interest, we tried to offer the teaching staff support in performing student-focused activities, which would stimulate them and raise awareness, as well as shape them as self-sufficient persons, capable of setting goals and of reflecting, individually, as well as collectively, upon strategies chosen to reach those aims.
The data achieved and processed with the SPSS programme have revealed that the educational programme created by us, systemic and focused on independent activities, which valorise the individual, collective, cognitive and meta-cognitive reflection, inputs to shaping the strategic learning competence and facilitates the improvement of their school performance.

Zusammenfasung

Schlüsselworte:

Selbstständige Aktivitäten;
Strategisches Lernen;
strategische Lernkompetenz;
Individuelle und kollektive Reflexion;
Kognitive und metakognitive Reflexion

Die von uns durchgeführte experimentelle Forschung zur Erforschung der Entwicklungsmöglichkeiten der strategischen Lernkompetenz und der Verbesserung der Schulleistungen bei den Schülern der 11. Klasse, Fachgebiet: Pädagogik, Ausbildung: Unterstufenlehrer-Kindergärtnerin, gehört zur Kategorie der Forschungen, die auf die Steigerung der Effizienz von didaktischen Strategien durch das Experimentieren neuer Handlungsmodelle abzielen. Durch das vorgeschlagene Thema, das aktuell ist, haben wir es versucht den Lehrern die Möglichkeit zu geben, Tätigkeiten auszuführen, die sich auf die Schüler konzentrieren, sie motivieren und sie verantwortlich machen und sie als unabhängige Personen bilden, die fähig sind sich Ziele zu setzen, und sowohl individuell als auch kollektiv auf die gewählten Strategien zur Erreichung dieser Ziele zurückzugreifen. Die gewonnenen Daten, die mit dem SPSS-Programm verarbeitet wurden, ergaben, dass das von uns systematisch konzipierte Bildungsprogramm, das auf selbstständige Aktivitäten beruht, die die individuelle und kollektive, kognitive und metakognitive Reflexion valorisieren und zur Gestaltung der strategischen Lernkompetenz beiträgt und zur Verbesserung ihrer Schulleistung führt.

1. Introduction

The current reform in education promotes a series of pedagogical practices focused on students and on learning activity performed individually or in collaboration with others, highlighting the importance of what and how the student learned and how did he collaborate with others in the learning process.

A student who learns actively and interactively is his own initiator and organiser of the learning experiences, capable to permanently reorganise and restructure his own acquirements, in systemic vision. Through active learning we aim that students will gradually become capable to elaborate personalised individual learning projects, to assume responsibility for and to acknowledge them, to apply, evaluate, improve, monitor, manage and self-adjust learning by progressively achieving autonomy in learning and formation (M.-D. Bocoş, 2013, p. 86).

The competences of learning to learn fall into the category of key-competences and refer to an individual`s ability to think and efficiently coordinate the learning processes, to have a good time and information management, individually and in group. These competences imply a good self-knowledge of the self-learning needs, as well as of the possibilities to get involved in learning, of the self-motivation capacity to overcome the possible cognitive challenges and obstacles in order to successfully perform the learning tasks and processes (coord. M.-D. Bocoş, 2015, p. 226).

The strategic learning competence imply choosing and valorisation of the most efficient strategies in order to successfully perform the learning tasks and to cover the learning process, individually, as well as collectively.

2. Theoretical baselines

The study and analysis of the specialised bibliography have determined us, through this research, to try to reconfigure the role of the independent activities, by highlighting them in the study of high school pedagogy.

In the *Dictionary of Praxiological Pedagogy* (coord. M.-D. Bocoş, 2015, p. 38), *the term* „*independent activity*" has the following definition: „The intellectual or psycho-motor activity, individual or collective, based on personal efforts of those who learn, unassisted by teaching staff". The *independent activity* may be individual or collective/ in cooperation/ in group (when the activity of the students is organised in groups). The independent activities have complex features: they imply cognitive/ intellectual, psycho-motor, affective and emotional involvement, deep inner reflection, active and motivating learning behaviour, which determine constant cognitive (re)structuring and facilitate the production of something new, original, creative, either at personal level, or at general level. Therefore, independent activities imply self-involvement, self-information, self-organisation, self-learning, self-monitoring, self-suggestion, self-management of the activity. These features constitute a valuable educational instrument and may be used in various didactic informative and formative purposes, namely to achieve a wide range of fundamental objectives: knowledge discovery, recording, consolidation, deepening, synthesise, exemplification, application, revision, gaining intellectual and/ or practical skills and abilities.

Independent activities highlight strategic learning because they involve the analysis of tasks, choosing strategies for approaching tasks, evaluation of the tasks` solving manner, monitoring of performances, by fitting the paradigm of active and interactive pedagogy.

3. Research methodology

The didactical experimental research performed was based on a methodology system consisting of: the psycho-pedagogical experiment, questionnaire-based inquiry, observation, the study of products generated by the learning activity, research method of curricular documents and other school documents, knowledge pedagogical tests, methods, techniques and instruments of mathematical-statistical quantitative and qualitative interpretation (M. Bocoş, 2007). The statistical instruments used for data processing were: descriptive statistical analysis, t test for independent focus groups and t test for dependent focus groups.

The general hypothesis:

In the pedagogy study, applying to 11th grade students, at pedagogical profile, a systemic educational programme, based on systems of independent activities of the students, which explicitly highlight the individual, collective, cognitive and meta-cognitive reflection, inputs to shaping the strategic learning competence and facilitates the improvement of their school performance.

It comprised the following stages: pre-experimental, formative-experimental and post-experimental.

In performing the pedagogical research, we formulated the following **research hypothesis**:

Table 1. *Research variables*

Independent research variable:	Dependent research variables:
Applying to 11th grade students, at pedagogical profile, an educational programme, based on systems of independent activities of the students, which explicitly highlight the individual, collective, cognitive and meta-cognitive reflection, within the study pedagogical subjects (Students ` Class Management).	V.D.1. development degree of the strategic learning competence; V.D.2. school performance level at pedagogical subjects.

4. The results obtained and discussions/ the analysis of the results

We have applied the pre-test both to the experimental focus group, as to the control focus group, with the purpose of identifying the initial level of theoretical and practical knowledge acquired at the pedagogical subjects studied throughout the 1st semester of the 11th, 9th and 10th grades, as well as for establishing the level of abilities: knowledge and understating of notions specific to pedagogical subjects studied throughout the 1st semester of the 11th, 9th and 10th grade, as well as explanation and interpretation abilities of the theoretical and practical content of the pedagogical subjects studied throughout the 1st semester of the 11th, 9th and 10th grade.

Table 2. *Descriptive statistical data on the initial test of the experimental focus group and of the control focus group*

Descriptive statistics			
Initial test grade			
Experimental focus group	N	Validated data	84
		Missing data	0
	Average		4.2119
	Median		4.1000
	Module (modal value)		4.10
	Standard deviation		.88142
	Skewness asymmetry coefficient		.996
	Kurtosis tailedness coefficient		3.210
	Minimum		2.30
	Maximum		8.00
Control focus group	N	Validated data	81
		Missing data	0
	Average		4.1914
	Median		4.2000
	Module (modal value)		3.60
	Standard deviation		.96283
	Skewness asymmetry coefficient		.293
	Kurtosis tailedness coefficient		-.540
	Minimum		2.20
	Maximum		6.60

In order to compare grades average values at the initial test between the two student focus groups (experimental and control), we used the t test for independent focus groups.

We`ve started this initiative by testing the variances of the two focus groups, with the help of the Levene test.

Hypotheses of the Levene test:

H0 (null hypothesis) = the variances of the averages of the two focus groups are homogenous.

H1= the variances of the averages of the two focus groups are heterogeneous.

Whereas p>α (0.05), the H0 hypothesis is accepted (variances are equal) and the results in the first row of the table with t test are being further read.

T test hypotheses:

H0: there is no significant difference between the two focus groups in what concerns the grades average at the initial test.

H1: there is a significant difference between the two focus groups in what concerns the grades average at the initial test.

Whereas p>α (0.05), the H0 hypothesis is accepted, meaning there are no significant difference between the two focus groups in what concerns the grades average values at the initial test.

Therefore, it is determined that the grades average at the initial test for the students in the experimental focus group (A=4.21) is close in value to the average of the students in the control focus group (A=4.19).

After that, we applied to students in the experimental focus group the educational programme developed by us and put into practice as a support Curriculum. After going through the educational programme proposed by us, the **students**:

- learned to identify key words and phrases specific to the subject „Students` Class Management" (MEC, 2002);
- learned independent learning methods/techniques and applied them in independent activities;
- developed applications by using contents specific to „Students` Class Management" and by applying independent learning methods/ techniques;
- completed reflection/ self-evaluation exercises (with the purpose of strategic learning).

After going through the educational programme, the **teaching staff** benefited from:

- scientific content useful in teaching the subject „Students` Class Management";
- methods/ techniques useful in involving the students in independent activities;
- reflection/ self-evaluation exercises for teaching the students the strategic learning competence.

At the end of the formative phase, the post-test was administered, both to the students in the experimental focus group, as to the ones in control focus group. This test involved the comparative monitoring of the results of the two focus groups, with the purpose of evaluating the impact of the educational programme based on independent activities upon the students in the experimental focus group, from the perspective of valorisation of the individual, collective, cognitive and meta-cognitive reflection, of shaping the strategic learning competence and improvement of their school performance at the subject „Students` Class Management".

Table 3. *Descriptive statistical data on the post-test grades of the experimental focus group and of the control focus group*

Descriptive statistics			
Post-test grade			
Experimental focus group	N	Validated data	84
		Missing data	0
	Average		7.3345
	Median		7.0000
	Module (modal value)		6.00
	Standard deviation		1.52153
	Skewness asymmetry coefficient		.087
	Kurtosis tailedness coefficient		-1.299
	Minimum		4.70
	Maximum		10.00
Control focus group	N	Validated data	81
		Missing data	0
	Average		5.9210
	Median		6.0000
	Module (modal value)		5.00
	Standard deviation		0.94243

Skewness asymmetry coefficient	1.124
Kurtosis tailedness coefficient	1.444
Minimum	4.50
Maximum	9.00

In order to compare grades average values at the post-test between the two student focus groups (experimental and control), we used the t test for independent focus groups.

The result at t test for independent focus groups revealed that the grades average at the post-test for the experimental focus group is significantly different, from statistical point of view, from the grades average at the post-test for the control focus group (t=7.122; df=138.305; p<0.001). The grades average at the post-test for the students in the experimental focus group was 7.33. The minimum grade was 4.70 and the maximum grade was 10. The students in the control focus group have achieved a 5.92 grades average at the post-test, the minimum grade being 4.50, whereas the maximum grade was 9.

Table 4. *Statistical descriptive data on the comparison between initial test grades and the post-test grades*

Descriptive statistics for pair focus groups

Focus group			Average	N	Standard deviation	Standard error average
Experimental focus group	Pair 1	Initial test grade	4.2119	84	.88142	.09617
		Post-test grade	7.3345	84	1.52153	.16601
Control focus group	Pair 1	Initial test grade	4.1914	81	.96283	.10698
		Post-test grade	5.9210	81	.94243	.10471

T test for pair focus groups

Focus group			Differences between pair focus groups					t	df	p
			Average	Standard deviation	Standard error average	95% Confidence interval of the difference min.	max.			
Experimental focus group	Pair 1	Initial test grade - Post-test grade	-3.122	1.451	.1583	-3.437	-2.807	-19.716	83	.000
Control focus group	Pair 1	Initial test grade - Post-test grade	-1.729	1.080	.1201	-1.968	-1.490	-14.401	80	.000

In order to compare the initial test grades with the post-test grades, we resorted to t test for dependent focus groups (pairs).

The grades average at the initial test for the students in the experimental focus group was 4.21 and 4.19 for the students in the control focus group.

At post-test, students in the experimental focus group achieved a grades average of 7.33, whereas those in the control focus group reached a 5.92 average.

We considered the following hypotheses:

H0: there is no significant difference between the grades average at the initial test and the grades average at post-test.

H1: there is a significant difference between the grades average at the initial test and the grades average at post-test.

We determined that the grades average at both tests was significantly different, both for the experimental focus group (t=-19.716; df=83; p<0.001), as for the control focus group (t=-14.401; df=80; p<0.001).

Conclusion

The achieved results entitle us to state that application of the educational programe, based on independent activities, which highlight the individual, collective, cognitive and meta-cognitive reflection, was much more efficient in improving the school performance, as compared to the classic methods.

We state the crucial ***role of independent activities within the study of high school pedagogy:***

- the independent activities may be used for reaching various educational purposes, namely certain fundamental objectives, such as: knowledge discovery, recording, systematisation, application, formation/consolidation of intellectual and practical skills and abilities;
- the independent activities imply cognitive, affective and emotional involvement from the students;
- the independent activities require self-information, self-organisation and self-monitoring of the learning activity;
- the independent activities highlight the individual, collective, cognitive and meta-cognitive reflection;
- the independent activities help at shaping and developing meta-cognitive competences;
- the independent activities valorise strategic learning (M.-D. Bocoș, 2013).

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The Heuristic Approach from the Perspective of Student-Centred Learning

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The Heuristic Approach from the Perspective of Student-Centred Learning

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Abstract

Keywords:

Heuristic approach
Discovery
Active learning
Student-centred learning
Problem-based learning

The rapid evolution of modern society compels changes in each person's objectives and fundamental needs. It is therefore critical to efficiently anticipate the professional behaviours and profiles best equipped to adjust easily to an ever-changing future. From this perspective, the formation of the future generation gains new dimensions, and education must shift its focus. Student-centred learning has become the goal of the current educational mindset, perfectly integrated in the European environment. In this model, the student becomes the leading actor in his/her own evolution, and is given the responsibility of his/her progress. The heuristic approach gains a well-deserved role in an instruction process specific to our times, and it identifies with methods such as problem-based learning and discovery. This approach offers new perspectives on the development of competences, which are understood as an operating mode which employs knowledge, skills and abilities, but also builds attitudes towards knowledge and life.

Zusammenfasung

Schlüsselworte:

Aktives Lernen
Lentdeckendes Lernen
Heuristischer Ansatz
Problemlösen
Schülerzentriertes Lernen

Die gegenwärtige Entwicklung der Gesellschaft führt zur Veränderung der Ziele und Bedürfnisse jedes Menschen. Durch den stetigen Wandel wird es immer wichtiger, das zukünftige professionelle Verhalten schon heute antizipieren zu können. Aus dieser Sicht bekommt die Bildung der kommenden Generationen neue Bedeutung und der Fokus des Bildungsprozesses ändert sich. Schülerzentriertes Lernen ist deshalb eines der großen Ziele des heutigen Bildungssystems und integriert sich perfekt in die europäische Realität. Dadurch wird der Schüler der Hauptakteur seiner Entwicklung und ist selbstverantwortlich für seinen Fortschritt. Der heuristische Ansatz, der sich mit Methoden wie dem Problemlösen und entdeckendem Lernen identifiziert, spielt heutzutage eine wohlverdiente Rolle im aktuellen didaktischen Prozess. Diese Perspektive gewinnt bezüglich des Erlernens von Kompetenzen neue Bedeutung. Dieser Prozess ermöglicht es dem Schüler, mit Hilfe der neu erworbenen Kenntnisse und Fähigkeiten sich eine Einstellung über das Wissen und Leben zu bilden.

1. Introduction

In contemporary society, student-centred learning provides the solution to a series of problems, while offering the warranty of quality and efficiency of the instruction process. The issues and difficulties thus addressed are: lack of student motivation; lack of group cohesion; minimal engagement in academic activities; excessive focus on memory and reasoning over emotional intelligence, imagination, creativity; priority given to mechanical approaches over heuristic approaches; passive approach of instruction by some teachers; daily routine of all participants to education; and even decline of academic performance. The changeover of the social environment and of everyday life's dynamics leads to new horizons of student expectations from school realities. Rarely do teachers' standards match students' expectations, and the former are often found in the situation to be unable to relate to their students, or to understand their aspirations, interests and concerns.

In these circumstances, student-centred teaching and learning comes as a redeeming solution, aimed to redesign the entire classroom activity and to breathe new life into Romanian education. "Student-centred learning is an active strategy, which requires the construction of a positive and meaningful learning experience in real time, within a democratic and non-directive relationship" (Șoitu, Cherciu, 2006). „Student-centred learning describes approaches to teaching and learning which place the focus on the student's responsibility for activities such as planning, learning, interacting with teachers and other students, research and assessment" (Cannon, Newble , 2000). „**Student-centred learning provides students with greater autonomy and control over the selection of the subject of instruction, instruction methods and learning pace.**" (Gibbs, 1995).

2. Student-centred learning – the goal of 21st century's education

Student-centred learning implies the shift of focus on active learning, on the integration of learning situations, which unfold at the pace specific to each student or work group, providing learners with the responsibility of their own progress. The teacher is no

longer the provider, but the facilitator of knowledge and instruction, and the student becomes the leading actor in its own development and progress. Student-centred learning has emerged from the necessity to satisfy students' need of knowledge, to redesign the approach to teaching and learning, and to reconsider the teaching process. „When they are actively engaged in the teaching-learning process, students are no longer a simple audience ready to passively receive what is being taught or demonstrated" (Șoitu, Cherciu, 2006), but they become active part of instruction. However, to ensure a genuine activation of students in the classroom, it is important to remember that the involvement of the subject of learning is „quantitatively and qualitatively dependent on its own subjectivity, on the subjective interpretation of the instructional tasks, on the relevance and significance of instructional content at the level of its subjectivity" (Bocoș, 2013).

Student-centered typically refers to forms of instruction that, for example, give students opportunities to lead learning activities, participate more actively in discussions, design their own learning projects, explore topics that interest them, and generally contribute to the design of their own course of study. Additionally, student-centered instruction is often associated with classrooms that feature desks arranged in circles or small groups (rather than rows of desks that face the teacher), with „self-guided" or „self-paced" learning, or with learning experiences that occur outside of traditional classroom settings or school buildings, such as internships, apprenticeships, independent research projects, online classes, travel experiences, community-service projects.

Student-centered learning has defined circumstances where the individual determines the learning goal, learning means, or both the learning goals and means. Accordingly, the individual may establish specific individual and pursue learning goals with few or no external boundaries as typical during spontaneous, self-initiated informal learning. Alternatively, the individual may have access only to specific, defined resources to pursue individual learning goals, such as during free-time learning in formal settings. In cases where learning goals are externally established as in most formal school settings, the individual determines how they will be pursued. In essence, the cognitive demands shift from externally mediated selecting, processing, and encoding during directed learning to individually anticipating, seeking, and assessing relevance based on unique needs and goals.

A student-centred learning activity relies, first and foremost, on the personal characteristics of the student; its main objective is to build competences and its secondary objectives to transfer specific contents, to engage the student in the planning, instruction and assessment, creating positive learning experiences and enabling the transfer of knowledge onto a future learning experience.

An active lesson is built on active methods and techniques, and addresses the dynamism in each and every child. Active and participatory methods fulfil two functions: formative/cognitive, since students assimilate knowledge during the instructional process and formative/educational, since children gain intellectual, motivational and emotional skills and abilities, and develop their personality (Bocoș, 2013). The diversity of methods employed address their needs of dynamism, differentiation and particularization of the instructional activities. As such, the teaching experience becomes richer and the learning experience becomes more diversified and tailored to the needs of each student.

A pertinent classification ranks the methods specific to interactive teaching-learning as follows (Bocoș, 2013):

- methods for the development of an active mind (including personal reflection, drilling and problem-solving, experiment-based learning, learning by problem-based learning, discovery and cooperation, model-based learning, problem-based learning, E- learning etc.),
- methods and techniques for the development of critical thinking (the cube method, the quintet method, reciprocal teaching, gallery tour etc.) and
- methods for the development of creative thinking (brainstorming, idea engineering, synectics, Frisco, creative visualisation etc.).

One of teachers' challenging duties is to select the range of strategies suitable for a given activity. This decision should consider context-related elements and curriculum-related elements. Only by activating the subject of learning can teachers build positive learning experiences, which are useful and relevant for the learner.

3. Research methodology

Heuristic „is a guiding idea, a guiding principle in the entire instructional methodology", where the „role of organising tool in the heuristic strategy belongs to the concepts which are the subject matter of the teaching-learning process, given that such concepts determine the selection of objectives and events to be discusses and observed throughout the class" (Ionescu, Radu, 1995).

„Heuristic is a guiding principle in the methodology of interactive teaching, which recommends that the learning content should not be delivered to students in a processed and final form, but in a state which requires reorganisation and retransformation, capable to provide a pretext for individual investigation and research (Bocoș, 2013).

4. Research

The question of this research is: Which are the valences of the heuristic approach involved in achieving quantified school results in national tests for the primary school sudents? Given that, we formulated the hypothesis of the research: Applying the heuristic approach to the study of Romanian Language and Literature, Mathematics and Science in the 3rd and 4th grades contributes significantly to the improvement of quantified school results in national tests. We identified the methods of the research:

- the psycho - pedagogical experiment method;
- the method of researching curricular and legislative documents;
- the test method and other written examinations;

- the method of analyzing the outcome of the activities;
- the method of observation.

The experiment has taken place over three school years: 2014-2015, 2015-2016, 2016-2017. The experimental sample is formed by 90 students of „Nicolae Bălcescu" Highschool from Cluj-Napoca, and the control sample sums 123 students from different educational institutions from the same locality, schools comparable in tradition, performance and prestige.

The decisive stage coincided with the administration of the National Tests. These exams represent the initial testing of the research and they are inserted in The Law of Education, being designed as objective, ascertaining evaluation programmes. Also, they assess the fundamental competences acquired by students, and they are given at the end of the 2nd, 4th, 6th and 8th grade in Romania. The National Tests have a similar format to international evaluation tests.

The formative stage has taken place throughout two school years, 2015-2016 and 2016-may, 2017, and it includes a variety of didactic activities, which determined the students to engage actively in carrying out the tasks. The planning of this stage's didactic actions had as a main pillar the heuristic approach, built according to integrated teaching and learning.

Group work was one of the active-participative methods we adopted countless times because it implies cooperation in resolving certain tasks. Psychopedagogical research, which also concerns the sociology of education highlighted a greater productivity of the students who work in groups. Without disregarding the individuality of the student, the method emphasises the advantages of school work and extracurricular activities in groups, ensuring conditions so that the common effort is well organised and well sustained. This method targets, in particular, the social aspect of learning, the development of the student's social behaviour. It is a way of combinig individual learning with social learning and, to the same extent, with a manner of mitigation of an exaggerated individuality.

Its use presumes the understanding of the way in which the groups can be composed. During the experiment we proposed, we opted for two different ways of putting together the work groups. Firstly, the students were split based on their learning style, the requests being formulated explicitly for each intelectual profile in part. Secondly, they were put in aleatory groups, in which the requests were common for each team, but the working manner and the children's approach angles were different. Due to the fact that each didactic activity of this kind finalises with the product presentation of the activity of each team, the whole class benefits, because it can experience different approaches of the same subject.

During the Romanian Language and Literature class, we integrated other knowledge from subjects such as Science, Mathematics, Geography, Visual Arts, History. In addition, we took into account the students' learning styles, so that the formulated tasks will target these particular aspects. A specific example is mentioned below:

- The actors' group carried out the following task: „Create a pantomime moment, presenting the main events from the narative text <<The Elf of the Rose>>, by H. Ch. Andersen."
- The researchers' group had the following task: „Find as much information as you can about the plants which appear in the text <<The Elf of the Rose>>."
- The handy-students' group received the following task: „Create, from leaves, the gazebo described in the story <<The Elf of the Rose>>."
- The painters' group had to carry out the following task: „Draw the elves' portrets as they appear in the narative text <<The Elf of the Rose>>."
- The generous-students' group had to accomplish the following task: „Help your collegues by doing team work!"

We consider that offering such tasks as the one of the „generous-students" represents one of the skills which are necessary for the future adult. This capacity refers to developing and maintaining social interractions, and also to the interpretation of certain situations viewed from someone else's perspective. In one word, it refers to the development of empathy. The researchers' group, in order to accomplish their task (bringing additional information about the plants presented in the text), had access not only to the class' computer, but also to the botanical atlas from the class' library. The instruction assisted by computer allows the completion of a series of unique activities and developments such as modelings, stimulations and visualizations on the computer, but, especially, it allows making the experiment on the computer, which represents the third way of scientific discovery, after the practical-empirical one and the logical-mathematical one. Moreover, the improvement of the experiments with the help of the computer leads to overcoming the mathematical difficulties and to the profound understanding of certain laws which we would have not suspected without this new face of using the computer.

We used the pedagogical experiment for the science classes in particular, as it helped the students to make a connection between practice and theoretical knowledge. Each student will receive written-down instructions concerning the following experiment, along with some explicative drawings. These types of activities integrate subjects such as Romanian Language and Literature, Mathematics and Visual Arts, and they put the students in specific learning situations, from which they will learn about the surrounding world, in a fun and attractive way.

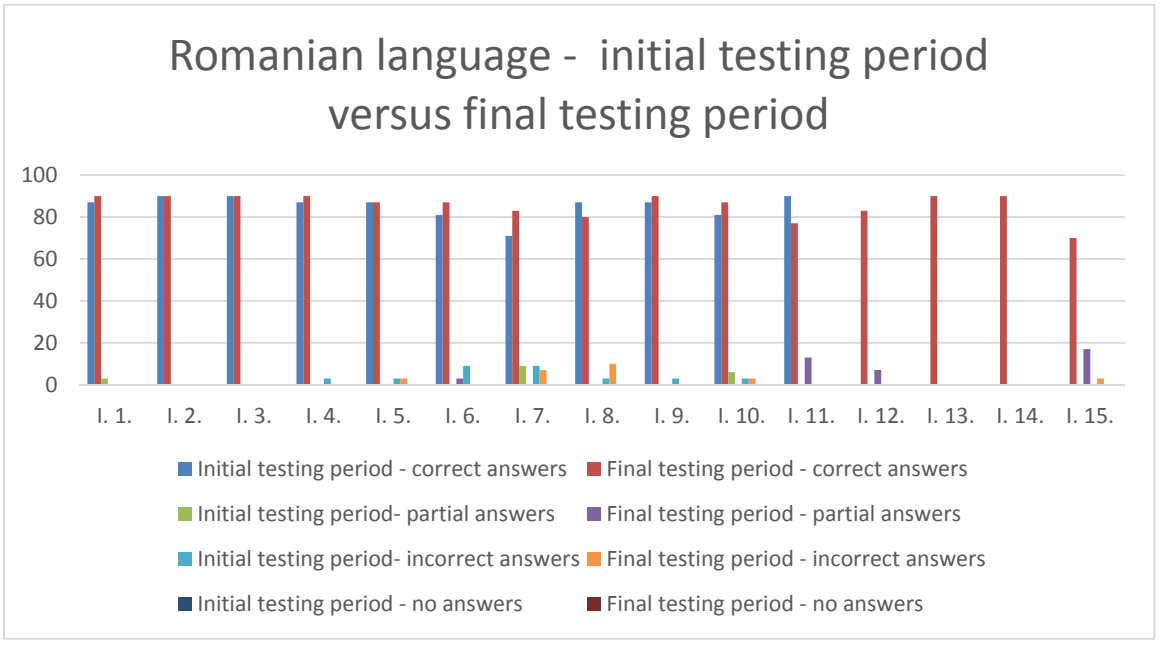
The post-experimental stage coincided with the administration of the National Tests from 2017, on the 3rd and the 4th of May (for the students who don't belong to the ethnic minorities). Also, during this stage, the reports and the individual files were filled out. They concerned the identification of the aquired competences for each student and, also, the skills which were in process of aquiring. The results obtained in 2017 were analysed and compared to the ones from 2015.

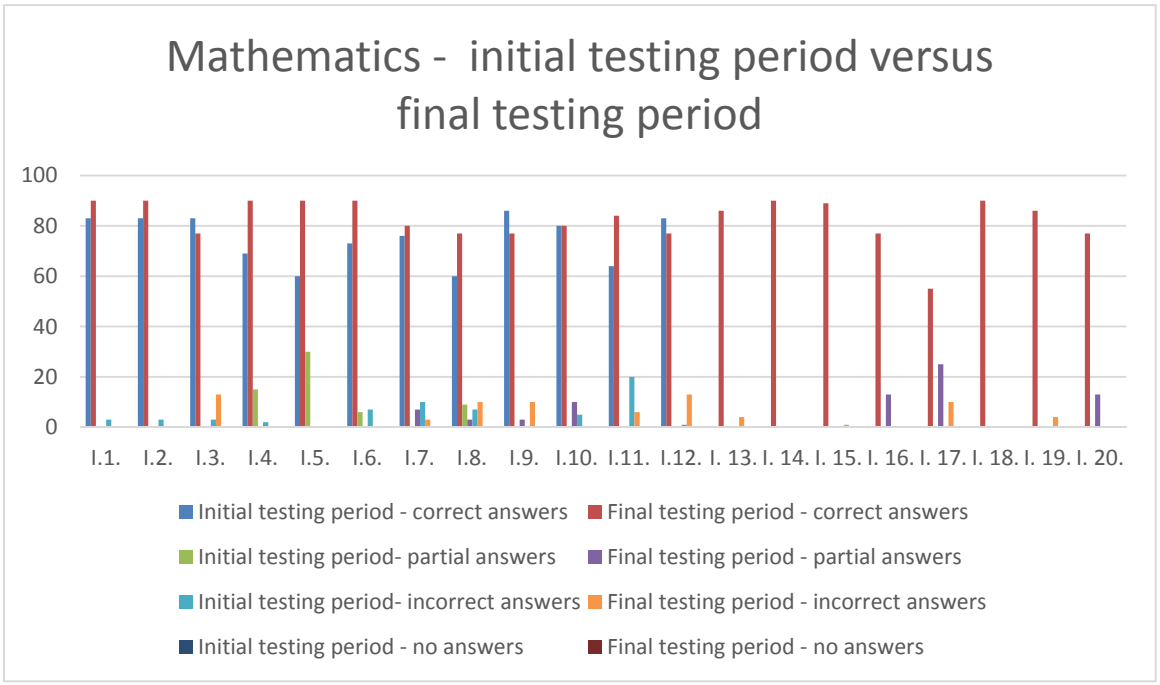
The stage of long-distance check has taken place one month after the National Test. This retesting's main purpose was to establish the durability of the acquisitions gained during the

formative stage. In this phase, the demonstration of the formulated hypothesis is certified. The students had to elaborate the final exams of the cicle of education, but also the tests for the fourth grade. These were conceived in collaboration with the teachers from „Nicolae Bălcescu" Highschool, Cluj-Napoca, which were part of a comprehensive project organised by our institution: „I am moving on to middle school".

The results obtained and discussions/ the analysis of the results

The results of the experimental investigation validate the fact that the didactic interactive strategies offer the premise of a thorough learning, accesible and pleasant, with a pronounced active-participative character from the students' part, with posibilities of efficient cooperation and communication. The experimental perspective of interactive learning-teaching strenghtens the belief that the heuristic approach constitutes an important strategy, which can be incorporated with success in the didactic strategy. The quantitative results, the interpretations and the observations of the experimental action proves the complex and subtle character of the learning-teaching process.





Conclusion

The systematic use of the interactive methods implies the development of the efficient and constructive communication relations, the acquisitions of the students being not only from the cognitive sphere, but also from the behavioural one, which thus contributes to the development of the personality.

The conduct of the experiment generated new horizons for future research, but it also shaped the limits of this action. Amongst these we enumerate the lack of pedagogical tradition in this domain in Romania, the initial training of the academic staff, predominantly focused on teaching each discipline in part, the latent opposition of the academic staff, the impossibility of thorough studying the scientific knowledge by students.

The responsible activation of students in the process of learning, the stimulation of collaborative work in groups of students who are assigned the same task, the decrease of the teacher's role as provider of information, the presentation of integrated contents consistent with students' intellectual and emotional needs, they are all sound arguments which come in support of student-centred learning and lead to long-lasting results. In this framework, the students have an active role in the quest for self-development, pursuing their educational needs, personal feelings and interests. This formative dimension is representative for the development of competences, understood as an operating mode which employs knowledge, skills and abilities, as well as for the development of attitudes towards knowledge and life.

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Investigation of Future Teachers' Perceptions on Education, Teacher and Teaching through Metaphor Analysis

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Research article

Investigation of Future Teachers' Perceptions on Education, Teacher and Teaching through Metaphor Analysis

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Abstract

Keywords:

pedagogical metaphor; future teachers; education; teacher; teaching

The aim of the present study is to investigate the potentials of the method of metaphor analysis used to explore the thoughts, values and attitudes of participants in educational processes. In this study both qualitative and quantitative, metaphors developed on education, teacher and teaching were analyzed. Different and valid metaphors were obtained from 101 first-year students participating in initial teachers training at Technical University of Cluj-Napoca, Romania. Considering their reasons, those metaphors were collected under 6 different categories for each concept. The findings of the study revealed that the metaphors developed by students reflect their opinions, expectations and current psychological states. Based on the data, the study offers a set of adaptation solutions, oriented towards a more efficient teacher training program. The results are discussed in relation to their relevance for creating more reflexive future teachers and for the optimization of the teaching practice.

Zusammenfasung

Schlüsselworte:

Pädagogische Metapher; Lehrerausbildung; Bildung; Lehrer; Lehre

Der Zweck dieser Studie ist es, das Potenzial der Methode der metaphorischen Analyse zu untersuchen. Diese Methode wird verwendet, um die Gedanken, Werte, Einstellungen der Teilnehmer in Bildungsprozessen zu erforschen. In dieser qualitativen und quantitativen Studie wurden die entwickelten Metaphern über Bildung, Lehrer und Lehre analysiert. Verschiedene und gültige Metaphern wurden von 101 Studenten des ersten Jahres erhalten, die an der Lehrerausbildung an der Technischen Universität Cluj-Napoca, Rumänien, teilnahmen. Angesichts ihrer Gründe wurden diese Metaphern in 6 verschiedenen Kategorien für jedes Konzept gesammelt. Die Ergebnisse der Studie zeigten, dass die von den Studenten entwickelten Metaphern ihre Meinungen, Erwartungen und gegenwärtigen psychologischen Zustände widerspiegeln. Auf der Grundlage der Daten bietet die Studie eine Reihe von Anpassungslösungen, die auf ein effektiveres Lehrerausbildungsprogramm abzielen. Die Ergebnisse werden in Bezug auf ihre Relevanz für die Schaffung von künftigen reflexiven Lehrern und für die Optimierung der didaktischen Praxis diskutiert.

1. Introduction

Education and training activities contain perceptual characteristics such as attitudes and interests just as they contain the students' knowledge and skills concerning the subject matter. In this regard, it is estimated that the teachers can also influence their attitudes and perceptions towards education, teaching and learning. In the last decade, the pedagogical discourse emphasizes the key role that the teacher has in designing and delivering an effective educational program (Hativa, 2000; Borich, 2011; Hattie, 2014; Andronache & Bocos, 2016), as well as the positive correlation between teachers' reflection capacity in terms of their own teaching practice and students' quality of learning (Korthagen et. al, 2001). Examining the future teachers' perceptions towards concepts such as education, teacher and teaching helps us clearly identify their thoughts, perspectives and attitudes and may become a necessity in the context of concern for improving the quality and relevance of teacher training programs. The most powerful instruments for clearly identifying the perceptions of the future teachers regarding the abstract concepts are the metaphors developed by them.

The metaphors are the tools used to explain an abstract concept by establishing connections between the abstract concept and various concrete and observable concepts. Metaphors help to convey the intended meaning with fewer words and a stronger emphasis. In this sense, it is inevitable for individuals to use metaphors when describing their thoughts, feelings and life experiences. The aim of metaphor is to understand and interpret an issue according to another issue (Lakoff, Johnson, 2005). Studies of Lakoff and Johnson (2005) on metaphors are considered an important stage. Recently, data has been collected by using metaphors in qualitative studies.

Although there is abundant research exploring faculty's conceptions of teaching (Kane, Sandretto, & Heath, 2002; Kember, 1997; Samuelowicz & Bain, 2001), research exploring the conceptions of future teachers is scarce. Few researchers have focused on the conceptions of engineering professors (Donald, 1992; McKenna & Yalvac, 2007; Van Driel, Bulte, & Verloop, 2007) and even fewer on the conceptions of future engineering professors (Huang, Yellin, & Turns, 2005).

2. The role of metaphors in education

In an article from 2009, Elaine Botha highlighted the importance of metaphors as premises for the process of reception and understanding of changes in the educational paradigm. According to the author, educational metaphors accepted and rationalized by teachers are reflected in various aspects especially related to the organization of the didactic activity: choosing the didactic methodology, the general deployment of the activities and organizing teaching experiences for students, in the personal way where the interactions between the actors involved in the education process are formed. As Botha states, there is a widespread recognition of the fact that metaphors play a significant aesthetical, ornamental and pedagogical role not only in literature, but also in education. Botha also added that metaphors are found in all diverse areas of education and they are also constitutive of the models and theories that form the subject matter of the various disciplines taught in schools and universities.

The metaphor has long been used to successfully facilitate education, fulfilling several functions, such as creating new perspectives, enabling categorization or aiding memorization (Low, 2008; Sticht, 1993). The use of metaphoric analogies has been pointed out as an essential aspect of academic discourse and practice, especially in the creation of theories (Boyd, 1993; Holyoak & Thagard, 1995). Metaphors can help teachers communicate with learners who need to understand a theory (Lawson, 1993) or abstract concepts (Duit, 1991); they allow learners to generate inferences and test predictions (Dagher, 1995); they enable teachers to individualize teaching approaches to different learners and their level of understanding (Duit, 1991). The prominence of metaphor in a certain context can enhance the learner' recall information (Cameron, 2003), especially in the case of more concrete metaphoric constructs and expressions. The use of metaphor in educational contexts is especially beneficial for learners actively involved in generating their own analogies. Several studies have shown that such learners have improved their critical thinking, questioning and problem-solving skills and the ability to apply those skills to scientific texts and ideas (Wittrock & Alesandrini, 1990). The research on metaphor in oral educational contexts focused on the school classroom interaction (Cameron, 2003) and the university lecture (Low, Littlemore & Koester, 2008) and paid a special attention to the metaphor's pedagogic functions, its role in structuring the discourse, its systematic and spontaneous uses, combined with gestures. The integration of metaphors in the teaching and learning process gives learners inspiration and motivation, facilitates understanding of relationships, similarities and differences, bridges elements of the known and unknown world and, in addition, helps the process of conceptualizing new knowledge (Leino & Drakenberg, 1993). Furthermore, applying metaphor analysis to educational research will contribute to a better understanding of the hidden motives that influence the world of education (Fábián, 2006).

When metaphors are used in the training of future teachers not only the positive changes and developments in the affective domain of their characteristics are observed, but also their effectiveness on the formation and development of their professional attitudes, perceptions and viewpoints towards situations or facts. At the same time, based on their observations and experiences, future teachers make connections between their new perceptions, behavior patterns and attitudes to situations and facts, and their perceptions and experiences from the past.

Within this framework, the aim of the present study is to investigate the opinions of future teacher through their metaphors about education, teacher role and teaching profession.

3. Research design

3.1. Purpose of the study

Our study was focused on identifying the opinions of first year future engineering teachers about education, teacher and school teaching by means of metaphors in order to structure personal and professional experiences helpful for building an effective belief system.

The study specifically looks for answers to the following questions:

1.Which metaphors do future engineering teachers use about education, teacher and teaching profession?

2. What are the conceptual categories drawn from metaphors of future engineering teachers continuing their studies at initial training on the concepts of education, teacher and teaching profession?

3.2. Participants

The participants of this study consist of first year teacher students attending the initial training program during the second semester of the 2016-2017 academic year at the Technical University Cluj-Napoca, Romania. A total of 101 teacher students participated in the final study, being at the classical university studies age. The proportional division of gender was as follows: 38 females and 63 males.

3.2. Procedure

A qualitative research method has been used in this study. Qualitative research is an inductive research process focused on the processing and understanding, where the researcher is the primary data collection tool and data is described in depth (Merriam, 2009). The study has a descriptive character since it aims to depict the

phenomenon it focuses on as it actually is. Metaphors have been used as qualitative data collection tools in the study, as they are used for the purpose of describing a circumstance.

Participants were asked to complete the sentences such as *„Education is like . . . because……", „A teacher is like . . . because …", „Teaching is like . . . because……"* by focusing on only one metaphor to indicate their conceptualization. The content analysis technique was used to analyze the data. First, the metaphors and then conceptual categories will be identified according to metaphors.

Out of the 110 students participating in the study, 101 of them developed metaphors that had a validity permitting it to be used in the study. The consistency in the explanations of the metaphors developed by the participants has been taken into consideration.

4. Results

In order to determine future teachers' perceptions and views, metaphors were used. As one of data collection techniques of a qualitative research, metaphors are one of the most important methods utilized to examine correctness of theories based on so many variables (Jensen, 2006).

The purpose of this study is to reveal the perceptions of future engineering teachers on the concepts of education, the teacher' s role and teaching profession through metaphors. The data has been analyzed by means of content analysis. Metaphors developed by participants have been assessed in terms of their common properties by taking their justifications into consideration and then they have been categorized according to these properties. From the total metaphors developed by the participants for each investigated concept, several categories were established as follows: education (71 metaphors under 6 categories), teacher (52 metaphors under 6 categories) and teaching (64 metaphors under 6 categories).

Within this scope, the process of the analysis and interpretation of the metaphors future teachers developed about education, the teacher's role and teaching profession consists of the following five stages: recording the data, elimination, forming the categories, validity and reliability assurance and presentation of the data.

Recording the data: The sentences filled by the participants were numbered. Three word files were opened for metaphors on education, the teacher's role and teaching profession and then an excel file regarding personal information was opened to record all the information.

Eliminating and sorting stage: After two researchers analyzed metaphors written by prospective teachers, 9 survey forms were excluded from the assessment for a variety of reasons (to leave blank, not to mention metaphors or not to write the reason of it even if they wrote about a metaphor etc.). In this research 101 participants' metaphor expressions were evaluated.

Forming the categories: Metaphors that were chosen after the stage of eliminating and sorting, were analyzed with the method of content analysis. First of all, metaphors were determined and then metaphors were collected under categories according to the explanations written by participant.

Validity and reliability assurance: Two separate researchers examined and coded the metaphors of future students on education, the teacher's role and teaching profession. Reliability of the research was calculated by using the formula of Reliability = Consensus / (Consensus + Divergence) (Miles & Huberman, 1994). Reliability coefficient was found as 85% in education metaphor of future teachers, 87% in teacher metaphor and 84% in teaching metaphor, respectively.

Presentation of data: Metaphors were presented according to categories. Due to the fact that direct quotations clearly reflect the opinions and experiences of participant, examples were given from the metaphors used by the participants. At the end of the example statements taken from participants, the faculty and survey number were written in brackets.

5. Findings and discussion

In this section findings will be discussed according to the sub-problems.

5.1. Metaphors used by future teachers for the „education" concept and categories derived from those metaphors

When metaphors obtained from this research were generally considered, 101 valid metaphors were totally used. Metaphors were categorized according to why those metaphors were used while analyzing metaphors. The metaphors for the „education" concept developed by the future teachers were divided into six categories. The categories concerning the developed metaphors are shown in Table 1.

Table 1. Categories of the future teachers' metaphors about education

Categories metaphors	Metaphors	Frequency (f)	Percentage (%)
Information source	source of knowledge (n=4), soul nourishment (n=1), the lock of knowledge (n=1), gate to knowledge (n=1), the sky speaker (n=1), exploring the information (n=1), the art of self-discovery and creativity of uniqueness (n=1), the mind-company (n=1), the cultivation of soul and mind (n=1) , the dictionary of life (n=1), map for knowledge (n=1), culture (n=1), island to be gradually discovered (n=1), source of life (n=1), meeting between the individual and society (n=1), knowing the fire without getting burned (n=1), the desire to know (n=1)	20	**19.80**
Development	tree (n=7), human development (n=7), shaping (n=5), the cornerstone of the society (n=3), the scale of the sky (n=2), polishing the diamond (n=2), step to humanity (n=1), house (n=1), foundation (n=1), window to the future (n=1), hammer on hot iron (n=1), gardening (n=1), maturation (n=1), a worm that turns into a butterfly (n=1), a person's past (n=1), bridge on a human life is concerned (n=1), art (n=1), human survival (n=1), life from another person's perspective (n=1), lifeline (n=1), building a better world (n=1), plasterin (n=1), guidance (n=1)	43	**42.57**
Enlightenment	fire (n=2), intellectual light (n=1), the eye of a storm (n=1), the light at the end of the tunnel (n=1), the second birth (n=1), the transition from darkness to light (n=1)	7	**6.93**
Results	Lego toy (n=1), fruit (n=1), ore (n=1), motor (n=1), diamond (n=1), gold (n=1), the plate cake (n=1), product (n=1), the stick man helper blind, deaf human hearing aid and poor man's fortune (n=1), honey (n=1)	10	**9.90**
Key to success	successful future (n=5), bright way to reach success (n=3), compass towards infinity (n=1), key to success (n=1)	10	**9.90**
Qualitative labels	heaven on earth (n=1), is better than pearls (n=1) salt in food (n=1), it is vital life (n=1), freedom (n=1), the aorta of life (n=1), life (n=1), lifestyle (n=1), water (n=1), the drop of brightness (n=1), the white coat (n=1)	11	**10.90**
Total		**101**	**100**

In relation to the metaphors that the future teachers developed about education (Table 1), it is seen that they expressed their opinions about education through 71 metaphors and 6 categories: information source, development, enlightenment, results, key to success, qualitative labels.

The mostly used metaphors were as follows: „development" (7 times), „tree" (7 times), „successful future" (5 times), „shaping, modeling" (5 times), „the source of knowledge" (4 times), „the cornerstone of society" (3 times), „bright way to reach success" (3 times).

Nearly a quarter of the participating students was focused on education as an information source, a transmission of ideas, a perspective that otherwise is very largely shared by the collective opinion. A sample statement regarding the information source category is: *„... is like a map for knowledge. Because it makes us find our road in teaching world."*

A category of metaphors the participating future teachers developed about education is „development". Participants developed metaphors indicating complexity and expressing the fact that the scope of education is the development, the modeling of the students' personality, the source of knowledge, the cultivation of the soul and the mind, ensure a successful future, it is essential and vital in life. A function of education is visible here, with more emphasis on personality development than on social development and integration. The fact that the majority of students that fall into this category of answers equal education with building, developing and shaping personality signals an initial orientation of them towards teaching as supporting students' positive evolution. A sample statement regarding the „development" category is: „.... is like guiding knowledge. Because s/he trains teacher for becoming teacher."

A little number of participants (9.90%) had answers related to education as a set of products. Given the little formal knowledge experience first year students have at the beginning of their studies, their focus on education as a product was to be expected. We anticipate that the deeper insight they will have in the training years on the processes of teaching and learning will make them increasingly aware on the importance of processes in education as well as that of products.

We notice the generally positive attitude towards the education as a key to personal and professional success. A sample expression related to metaphors in „key to success" category is as follows: *„.... is like a key to success. Because opens all questions' door."*

11% of students' visions on education were expressed through synthetic qualitative labels that lead to the idea of general recognition the importance and necessity of education.

Metaphor sample in "qualitative labels" category is as follows: *„...like salt in food. Because without it, it is savourless."*

5.2. Metaphors used by future teachers for the „teacher" concept and categories derived from those metaphors

Concerning the findings about the metaphors that first year students use about „teacher" concept (Table 2), it is seen that they expressed their opinions through 52 metaphors organized in 6 categories: model, guide, knowledge provider, enlightener, negative social status, specific features.

Table 2. Categories of the future teachers' metaphors about "teacher" concept

Categories metaphors	Metaphors	Frequency (f)	Percentage (%)
Model	model (n =7), gardener (n=3), sculptor of personality (n=3), the artist (n=2), jewelery (n=1), farmer (n=1), the casting mold (n=1), example to follow (n=1), worker (n=1)	20	**19.80**
Guide	guide (n=21), parent of education (n=6), pioneer (n=4), pillars (n=2), leader (n=2), scale of the sky (n=1), gate to wisdom (n=1), mentor (n=1), catalyst (n=1), tree root (n=1), master (n=1), driver (n=1), motor (n=1), coach of a team (n=1), key for closed roads (n=1), water nest (n=1)	46	**45.55**
Knowledge provider	source of knowledge (n=4), interactive book (n=3), living water spring (n=2), dictionary (n=1), chain huge of knowledge (n=1), erupting volcano every day (n=1), knowledge mill (n=1), learning mother (n=1), immortal knowledge wings (n=1)	15	**14.85**
Enlightener	candle (n=2), inspiration for the soul (n=2), angel of light (n=1), light guide (n=1), window through which the light comes (n=1)	7	**6.93**
Negative social status	The Glabrous of the Harap-White Fairytale - necessary evil (n=1)	1	**0.99**
Specific features	owl (n=1), child (n=1), Saint Sunday (n=1), oxygen in water (n=1), hearth (n=1) , nature (n=1), container that is not empty (n=1), intelligent (n=1), hero in time combat (n=1), engineer can solve anything (n=1), friend (n=1), working bee (n=1)	12	**11.88**
Total		**101**	**100**

Among those metaphors, mostly used metaphors were as follows: „guide" (21 times), „model" (7 times), „parent of education" (6 times), „pioneer" (4 times), „source of knowledge" (4 times), „interactive book" (3 times), „gardener" (3 times), „sculptor of personality" (3 times).

Nearly a quarter of the participating students saw the teacher as a guide referring to specific teaching and school learning activities. A sample statement regarding the "guide" category is: *„.... is like a guide. Because we are guided by his/ her knowledge and experience".*

Another category of metaphors the participating students developed about „teacher" concept is „knowledge provider". Participants developed metaphors belonging to this category because they thought that the teacher plays an important role in keeping and sharing of knowledge in order to make decisions about the effectiveness of the process, the structuring of the teaching process and directing of students according with their interests and talents. Future teachers most frequently developed the metaphor of „source of knowledge" among those belonging to the „knowledge provider" category. The following statement by a future teacher is an example of the metaphors belonging to this category: *„.... is like a dictionary. Because s/he explains us professional knowledge".*

Most of the students referred to teachers both as models, knowledge providers and as illustrators of certain specific features which recognize that the responsibilities and mission of teachers is driven not only by the formal professional attributions, but also by dedication, commitment, intelligence and communication (n=12).

Metaphor sample in „enlightener" category is given below: *„... like a candle. Becauses s/he enlightens around, s/he is the person who guides the society."*

When Table 2 is examined, it is seen that the future teachers used expressions to explain metaphors such as: „a person who provides students a subject specialist and source of knowledge about his/her subject area", „a person who presents the learning materials according to the levels of his/her students persistently", „a person who starts an activity, but cannot do it alone, students need it too", „a human being that loves and devotes herself", „a person who endears himself/ herself to their students", „a person who is model to his/ her students through his/ her behaviours", „a person who has good relations with his/ her students", „a person who has good command of his/her students, subject – area and classroom", „a person who understands his/ her students", „a person who performs his/her profession as it requires under all circumstances".

The teacher forms and develops students' competency of learning to learn, realizing that this means nothing more than providing complete, well organized, ready-made knowledge, but rather the training to students of autonomy in managing their own learning, the awareness of strengths and weaknesses, both on a personal and professional level, increasing the interest in developing school and personal values and attitudes (Peculea, L., 2015).

5.3. Metaphors used by future teachers for the „teaching" concept and categories derived from those metaphors

Categories of future teachers from first year initial training on „teaching" concept are given at Table 3.

Table 3. Categories of the future teachers' metaphors about "teaching" concept

Categories metaphors	Metaphors	Frequency (f)	Percentage (%)
Process	way of transmitting knowledge (n=9), continuous journey tending to infinity (n=2), transfer (n=2), path to life (n=1), grinding process (n=1), the magic (n=1), knowledge interpretation (n=1), the triggering (n=1), change of substance in containers (n=1), storm mind (n=1), journey to the center of the earth (n=1), hierarchy (n=1), how an animal takes its chick to hunt (n=1)	22	**21.79**
Disseminating information	sharing of new knowledge (n=17), fruit planting, sowing (n=7), full mine of jewels (n=1), cascade (n=1), coal (n=1), the Jordan of Education (n=1), arch of the lessons (n=1), power (n=1), cookbook (n=1), story (n=1), rainbow of knowledge (n=1), flight information (n=1), inheritance (n=1), gift (n=1), tree irrigation (n=1), solar wave emission (n=1), presentation of a label (n=1), writing a book (n=1), Swedish buffet (n=1)	41	**40.59**
Guidance	guidance (n=2), forming (n=2), modeling (n=2), help (n=2), art (n=2), perfecting (n=1), continuous netting (n=1), sculpture of the brain (n=1), dough (n=1), building (n=1), the helm of a ship (n=1), creating a straight path for an tortuous field (n=1), forging (n=1)	18	**17.82**
Socialization	interaction (n=1), the need to share with others what the teacher is already known (n=1), discussion during the road (n=1), way of socialization (n=1), bridge of ideas, experiences (n=1)	5	**4.95**
Preparing for the future	preparation unknown (n=1), helping to take off (n=1), occupation (n=1), opportunity (n=1), way to start independent life (n=1)	5	**4.95**
Reflections	overflow experiences (n=2), language learning (n=1), care (n=1), vital process (n=1), difficult (n=1), sacrificing (n=1), dedication (n=1), essential (n=1), the lioness who takes care of her cubs (n=1)	10	**9.90**
Total		**101**	**100**

As seen in Table 3, the student teachers developed 64 metaphors in total and 6 categories about teaching profession: process, disseminating information, guidance, socialization, preparing for the future, reflections.

The „teaching" metaphors most often mentioned had in their substance the following orientations: „sharing of new knowledge" (17 times), „way of transmitting knowledge" (9 times), „fruit planting, sowing" (7 times), „guidance" (2 times), „forming" (2 times), „modeling" (2 times), „help" (2 times), „art" (2 times), „continuous journey tending to infinity" (2 times), „transfer" (2 times), „overflow experiences" (2 times).

Thus, 21.78 % of students referred to teaching as to a process that involves students and is focused on the method of transmitting information, a continuous process of triggering, hierarchy, transfer of knowledge, maintenance of the learning activity of the students. However, the views of teaching profession as acquiring knowledge, sharing of new knowledge prevails in the answers of the participants (n=17). A sample expression related to metaphors in "Disseminating information" category is as follows: *„... is like a cookbook. Because it contains recipes of knowledge of different fields."* We emphasize that teaching is not limited to passing a volume of knowledge to a particular subject, but it involves systematic actions and operations undertaken to organize, develop and guide the learning activities performed by students.

In the first-year students' view, teachers should resort to valuing a set of procedures and techniques in presenting the subject matter, to motivate and encourage students to learn, to guide them from a cognitive and metacognitive point of view and to lead them to achieve appropriate academic results.

In this respect, students are actively involved in understanding and knowledge, taking into account the assumption that the mere presentation of content does not mean anything to the student unless it suggests/recommends/indicates concrete ways of cognitive and metacognitive reporting to that content.

Naturally, we can talk about the predominance of a category, but it is essential that the major purpose of teaching is to promote and support learning and, implicitly, to achieve the proposed educational goals. These standards are designed to provide guidance for understanding how students learn, what should be taught and the teaching skills necessary to support meaningful student achievement. While some students learn to self-regulate their learning, others need guidance, not only to acquire the strategies, but also to develop the conditional knowledge necessary to know how, when and where to these strategies can be applied

appropriately. Metaphor sample in "guidance" category is given below: *„…. is like guiding knowledge. Because s/he trains teacher for becoming teacher."*

Teaching for learning is enhanced when students receive guidance for improvement on their work in an appropriate atmosphere, socializing, communicating ideas, feelings, and experiences. Participants developed metaphors belonging to „socialization" category because they thought that communication, interaction, constantly changing ideas, feelings are an indispensable part of the process of teaching.

The tendency identified in the sixth category answers needs more attention, as most of the attributes associate with teaching mentioned by participants incline to be positive. Based probably on their schooling experience, first year students appreciate that present teaching is a vital process, essential, involves care, sacrifice, dedication.

Concerning the expressions that future teachers used in order to explain the metaphors about teaching profession, it is observed that the students used the following expressions to explain teaching profession metaphors, such as : „to deliver in order to fill an empty vase", „a profession shapes the future and provides the training of new generation", „to be able reach everyone in the society", „to construct a human being (an individual)", „to form characters, capacities, attitudes", „raising an individual", „a continuous journey tending to infinity, it does not have an end", „the need to share with others what the teacher already knew", „the way a teacher conveys to a student his knowledge in a certain field", „transmission of knowledge to students via endless patience and efforts."

Conclusions

The research method of metaphor analysis proves to be a potent tool for investigating the values, beliefs and attitudes of the participants of educational processes. Although the application of some variants of the method tends to be influenced by the personal attitudes of the researcher and, as a result, its reliability is often challenged in educational research, we find that the technique is presumed to allow the participants to explore their own beliefs and to raise self-awareness among the target group.

In this study, the metaphors of future teachers on education, teacher and teaching were analyzed. Thus, conceptual categories of future engineering teachers from initial training on „education" concept are information source, development, enlightenment, results, key to success, qualitative labels. On the other hand, conceptual categories of prospective teachers on „teacher" concept are model, guide, knowledge provider, enlightener, negative social status, specific features. In this study, the 101 metaphors of prospective teachers for the „teaching" concept were clustered under six conceptual categories entitled as follows: process, disseminating information, guidance, socialization, preparing for the future, reflections.

Providing a quality education highly depends on the quality education of the teachers. Teachers who develop individuals' current skills and help students' learning, who don't just give the information the students but want them to gain methods of obtaining information, as well as to gain the skill of using knowledge can educate the future individuals. In this respect, being educated as a guide, pioneer, model is of high importance. The teacher is the leading character in teaching period for years.

Metaphors help to understand the thoughts of people. As it can be seen in results metaphors can be used to collect data. More researches can be studied about becoming teacher and initial teachers training programs. We consider that training the future teacher students' reflection and self-reflection capability is essential for raising awareness and for structuring personal and professional experiences, a principle firmly supported by the studies of Korthagen et al. (2006). Encouraging personal or collective reflection of the students is a valuable source of personal and professional development, allowing them to permanently self-analyze their ideas, learning and training experiences, to evaluate their progress, to improve their future efforts, both from the cognitive and metacognitive perspective, to develop cognitive and metacognitive reflection strategies and tools, such as: (self) reflection journals, learning portfolios, observation sheets, self-evaluation sheets etc. (Bocoș, M.-D., 2013).

Exercising reflection on the key issues that teachers face in their professional practice must become a principle included into the initial and continuing teachers' training. Reflection can be oriented to enhance the bases of students' professional metacognitive knowledge, a task that can be addressed during practical training by emphasizing self-observation and evoking personal arguments for didactic decisions (Glava, A., Glava, C., 2015).

Obviously, the investigation of pedagogical metaphors that describe the psycho-pedagogical vision proper to each student can represent not only an assumption, but also an essential step in the adoption of a metacognitive behavior in the act of designing and achieving the educational act and also in increasing the capacity of students to become aware of their thoughts and of their influence on teaching decisions.

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