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THE USE OF 2D VIDEO GAMES FOR CHILDREN WITH ADHD AND IMPROVING TEACHERS' INTERCULTURAL COMPETENCE

O USO DE VIDEOGAMES 2D PARA CRIANÇAS COM TDAH E MELHORANDO A COMPETÊNCIA INTERCULTURAL DOS PROFESSORES

EL USO DE VIDEOJUEGOS 2D PARA NIÑOS CON TDAH Y LA MEJORA DE LA COMPETENCIA INTERCULTURAL DE LOS PROFESORES

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ABSTRACT
According to current data, a sizeable share of countries' populations are now multicultural. It is believed that culture significantly impacts the creation of therapeutic materials, practice models, methods for assessment, and client collaboration. Additionally, recent articles include the importance of understanding a child's needs in the context of the culture at significant, as well as the interaction between a client and a therapist. Despite significant advancements in developing and applying efficient services for children with ADHD, ethnic minority youths and teens still lag behind their non-minority peers in terms of evaluation and therapy rates. This study intends to highlight the skills that educators must acquire to successfully execute the idea of multicultural education and the effectiveness of using mobile 2D video games to identify and treat the symptoms of ADHD.

KEYWORDS: ADHD. Video Games. Intercultural Education. Metacognitive Skills. Emotional Intelligence.

RESUMO
De acordo com os dados atuais, uma parcela considerável da população dos países é agora multicultural. Acredita-se que a cultura impacta significativamente a criação de materiais terapêuticos, modelos de prática, métodos de avaliação e colaboração do cliente. Além disso, artigos recentes incluem a importância de entender as necessidades de uma criança no contexto da cultura significativa, bem como a interação entre um cliente e um terapeuta. Apesar dos avanços significativos no desenvolvimento e aplicação de serviços eficientes para crianças com TDAH, os jovens e adolescentes de minorias étnicas ainda ficam atrás de seus pares não pertencentes a minorias em termos de avaliação e taxas de terapia. Este estudo pretende destacar as habilidades que os educadores devem adquirir para executar com sucesso a ideia de educação multicultural e a eficácia do uso de videogames 2D móveis para identificar e tratar os sintomas do TDAH.

PALAVRAS-CHAVE: TDAH. Videogames. Educação Intercultural. Habilidades Metacognitivas. Inteligência Emocional

RESUMEN
Según los datos actuales, una parte considerable de la población de los países ahora es multicultural. Se cree que la cultura tiene un impacto significativo en la creación de materiales terapéuticos, modelos de práctica, métodos de evaluación y colaboración con el cliente. Además, artículos recientes incluyen la importancia de comprender las necesidades de un niño en el contexto de la cultura significativa, así como la interacción entre un cliente y un terapeuta. A pesar de los avances significativos en el desarrollo y la aplicación de servicios eficientes para niños con TDAH, los jóvenes y adolescentes de minorías étnicas todavía están rezagados con respecto a sus pares que no pertenecen a minorías en términos de tasas de evaluación y terapia. Este estudio pretende resaltar las habilidades que los educadores

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deben adquirir para ejecutar con éxito la idea de la educación multicultural y la efectividad del uso de videojuegos móviles 2D para identificar y tratar los síntomas del TDAH.

PALABRAS CLAVE: TDAH. Videojuegos. Educación Intercultural. Habilidades Metacognitivas. Inteligencia Emocional

INTRODUCTION

Drigas & Driga (2019) claim that Attention Deficit Hyperactivity illness (ADHD) is a complicated neurological illness for which there is currently a paucity of scientific knowledge about its causes and effective treatments. Some factors, including the family's socioeconomic standing, the mother's presence of psychiatric disease, and smoking and alcohol use during pregnancy, are significant. Lack of attention and impulsivity are the main signs and symptoms of ADHD, caused by problems with the brain's executive function-controlling regions. These abilities, including memory and attention, form the basis for someone's organizational skills, capacity for task focus, emotional regulation, and self-evaluation.

A therapy based on improving cognitive and metacognitive abilities is necessary to manage the symptoms of ADHD (DRIGAS, et al. 2018; DRIGAS; MITSEA, 2020; 2021). Drigas & Mitsea, (2021) and Drigas, et al., (2021), claim that an individual's self-awareness of their strengths and weaknesses, self-observation, self-regulation, adaptation, and flexibility in various areas (cognitive, emotional, and behavioral), recognition, discernment, and mindfulness all contribute to the gradual development of cognitive and metacognitive skills. Better self-monitoring is a skill that helps individuals with high social and emotional intelligence control their conduct and the behavior of children with ADHD (DRIGAS; PAPOUTSI, 2018; BAMICHA; DRIGAS, 2022). Since controlling impulses is one of these kids' main problems, emotional intelligence also focuses on the person's personality and self-control (DRIGAS et al. 2021; BAKOLA; DRIGAS, 2020; DRIGAS; SIDERAKI, 2021; DRIGAS et al., 2022). The following stages must be passed through in order to get to the most significant degree of emotional intelligence, which is emotional unity, according to Drigas & Papoutsi's (2018) nine-level model (pyramid) of emotional intelligence:

1) Emotional Stimuli (coding of emotional senses, attention)
2) Emotions' Recognition, Perception/Expression of Emotions (memory, perception, recognition, emotions' identification)
3) Self-knowledge (self-perception, awareness, self-observation)
4) Self-management (self-regulation, flexibility, self-control)
5) Social Awareness, Empathy, Emotion Discernment (awareness, monitoring, social recognition & flexibility)
6) Social skills, Specialization in Emotions (reflection, management of social problems)
7) Universality of Emotions, Self-actualization (self-perfection, self-completion)
8) Transcendence (self-reflection, transcendental knowledge)

9) Emotional Unity (pure consciousness & fullness)

Maslow's pyramid of needs is topped by the seventh level, "self-actualization". Meeting lower-level wants, such as those for survival, security, social approval, and self-esteem, is necessary to reach this becoming condition (MASLOW, 1943;1987). Individuals with ADHD won't be able to master the necessary cognitive and socio-emotional skills that will enable them to successfully integrate into society until they can meet their needs, develop their capacity for emotional intelligence, and enhance their metacognitive skills (DRIGAS; PAPPAS, 2017; DRIGAS; MITSEA, 2020; DRIGAS; BAKOLA 2021; DRIGAS; MITSEA, 2021). The primary line of therapy for symptom relief is pharmacotherapy. However, because of its adverse effects and addiction risk, it has several drawbacks. On the contrary, modern technologies have proven to be equally successful as therapeutic tools.

1. 2D VIDEO GAMES

The impact of the EmoGalaxy video game on the social skills of kids with ADHD was examined by Hakimirad et al., (2019). Children with ADHD were included in the study's population, divided into two groups (experiment and control). Twenty boys between the ages of 7 and 12 were chosen, and the control group and the experimental group were randomly assigned into two groups of ten each. The control group received no special treatment, while the experimental group participated in fifteen (15) 45-minute-long EmoGalaxy therapy sessions. Children's social abilities were evaluated using the Gresham & Elliot (1990) Social Abilities Assessment Scale before and during the therapy.

Traveling between four worlds is required in the video game EmoGalaxy. The planets of joy, sorrow, fear, and anger represent one of the four basic emotions. The user can play a different game in each region of the world. Emotion regulation, emotion expression, and emotion recognition are the three areas of emotional capability where the game is intended to intervene. For instance, the "frowning" planet is where anger-related skills are used. The player must demonstrate and display fury in order to play any game. The game uses the front camera to take pictures of users' faces and identify their emotional state. The game asks the player to identify an angry face among the game characters if he cannot communicate the appropriate emotion. In other words, it assesses recognition, a rather fundamental level of emotional aptitude. Each game ends with a score for the players. A player's score can advance to the next planet, representing a different emotion, once they have accumulated sufficient fuel for their spaceship at a certain level (HAKIMIRAD et al., 2019).

EmoGalaxy is playable on PCs, iPhone 5 or later devices, Android smartphones and tablets with OS systems 4.4 and higher, and Android tablets. The two-dimensional game was created using the Unity 5 program. The test results for social skills before and after the therapy revealed a substantial difference. The collaboration grew by 0.46, assertiveness by 0.59, responsibility by 0.25, and self-control by 0.47, thanks to EmoGalaxy. Social skills as a whole were impacted by 0.73. EmoGalaxy, a cognitive video game, improved all aspects of social skills in kids with ADHD, according to the study's findings (HAKIMIRAD et al., 2019).

The "Braingame Brian" game was created by Prins et al., (2013) to help youngsters with ADHD with their executive functions. Named after the main character Brian, "Braingame Brian" features 25 tasks totaling 40 to 50 minutes and seven distinct environments, including the neighborhood around Brian's parent's home, the village, the uninhabited island, the backlands, the beach, the swamp, and the basement workshop. Everyone who inhabits these worlds has a problem. By doing mental activities, Brian assists students in finding solutions to these issues.

The child's drive to finish the program is increased with the help of an external support system. A central database receives the data from each training session. Teachers get online comments on the student's development based on this information. Forty children (8–12 years old) diagnosed with ADHD participated in the study. They were split into two groups: the experimental group, which received treatment using "Braingame Brian" (n = 18), and the control group, which received no treatment at all (n = 22). Parents and instructors were given questionnaires to complete before and after the intervention to evaluate disruptive behavior issues, executive function challenges, and ADHD symptoms. The findings demonstrated that children's executive functions (GIOIA et al., 2000) and symptoms of ADHD (Inattention and Hyperactivity-Impulsivity subscale of the Disruptive Behavior Problem Scale) (PELHAM et al., 1992) were greatly enhanced. The pilot research provides a wealth of encouraging evidence regarding the efficacy of this approach. To achieve effective results, "Braingame Brian" should not be viewed as a stand-alone form of therapy but rather as a complement to or an integral part of current ADHD treatments, such as medication and behavioral therapy (PRINS et al., 2013).

In order to enhance reading and comprehension abilities in kids with ADHD (WROŃSKA et al., 2015), unveiled a brand-new interactive game. The iPad game LyC (Lectura y Comprensión) was made using methods from serious games that promote good health. Six kids, two boys and four girls, aged 8 to 12 years, with typical development and who had not been given an ADHD diagnosis, comprised the control group in that study. The XCode 5 programming environment, the SQLite and MySQL databases, an Apple iPad 2 running iOS 7.2, and the development environment were all used to create the game. According to the website's Programa de Entrenamiento de instrucciones Escritas Nivel Medio (2013), its material was centered on reading comprehension and picture analysis activities. The game has three phases, and the application is made up of nine interactive activities with varying degrees of difficulty. The player must first read the text because it contains essential information. The next step is for him to understand and use the data. The player must then choose the correct response from the options provided. The solution is chosen by clicking and dragging a button from the toolbox onto the appropriate image.

The review of the game is divided into two sections. Firstly, the analysis of the data containing the game-playing children's scores and then a review of the system's usability using the SUS questionnaire. Two factors were noted during each kid's evaluation: the amount of time it took to finish each activity and the overall grade of the responses (each incorrect response received a score of 0). The SQLite database received these findings and saved them locally on the machine. The SUS

questionnaire was given to the kids just after they finished the game so that we could assess the game's usability. Ten statements made up the questionnaire, and each one had to be rated on a Likert scale from 1 (strongly disagree) to 5 (strongly agree) (WROŃSKA et al., 2015).

The results demonstrated that the game is simple to play and finish, which was supported by the SUS questionnaire's score. The primary conclusions of the study were that during the initial game phase, players studied how to play and found the rules to need to be clarified. Additionally, as the game progressed, disparities in age and gender became less critical (WROŃSKA et al., 2015).

An alternate diagnostic method for kids with ADHD was created by Crepaldi et al., (2020) and is dubbed "Antonyms" in the game. In the game Antonyms, the user (playing as Atansyon) assumes the role of a superhero tasked with rescuing a kingdom on the other side of the world. The four locations that Atansyon travels through are Woodland (W), River Crossing (RC), Training School (TS), and Central Building (CB). In order to complete the activities and scenarios, one must exercise self-control, planning abilities, emotional self-regulation, control, attention to detail, and enhanced standby time. An activity supervisor or therapist should be present when using antonyms. As the user progresses, the challenges and complexity of the mini-games increase because each one has a range of varying degrees of difficulty. Furthermore, the games offer rapid feedback through visual and auditory notifications. In addition, the player's behavior throughout the game may be watched, and their performance can be evaluated based on the various fault types (such as standby time errors and wrong responses) and completion times.

Sixteen boys between the ages of 8 and 11 worked as a team to analyze antonyms. Before participating in the trial, eight kids had ADHD diagnoses, while eight additional kids had neither ADHD nor any other neuro-developmental impairments. Two standardized tests, the Ranette and the Number Stroop assessments of the BIA test (MARZOCCHI et al., 2010), which are frequently used to diagnose ADHD, were given prior to the game. The first one, Ranette, has the child color a frog whenever they hear a particular sound ("GO") and stop when they hear another sound ("STOP"). The 10-minute test involves sustained attention, selective attention (the students had to choose the target sound), and suspension (the students had to control their impulsivity to continue). The second test, Number Stroop, uses stimuli that evoke two different and inconsistent responses, one of which—the answer that isn't chosen—is more impulsive than the other because it's an automated reaction that is frequently given. Keeping track of the mistakes made throughout the exam measures the control and suspension of actions.

The information acquired from the children without ADHD revealed that their performance in the antonyms task mirrored the outcomes of the usual tests used to diagnose ADHD in the exact domains (i.e., control and suspension of impulsivity). Remarkably, the number of errors in the BIA Ranette sub-test mirrored the mistakes in TS and CB. Additionally, compared to typically developing children of the same age without ADHD, children with ADHD did worse on the Antonyms test. Because Antonyms offers an enjoyable and easy-to-use environment and is centered on a model of neuropsychological

activities that concentrate on attention and impulsivity, these findings indirectly reinforce the idea of employing it as a potential device in various assessment processes (CREPALDI et al., 2020).

In their research, Delgado-Gómez et al., (2020) suggest using a video game to measure distraction in ADHD-affected children. Players in that kind of game control an animated character—in this case, a raccoon—as it navigates a maze of different hazards. In order to stay upright, the avatar must jump over 180 gaps that are in its way. The velocity of the avatar, the length of the trunk, and the length of the gap are each used to define one of the gaps' eighteen (18) squares. The suggested videogame's ability to be played on any computer or smartphone sets it apart significantly from other games that call for special virtual reality gear. Assessments are now possible without spending any money. The Unity 3D game engine, which is often used, was employed in the game's design.

The study involved 28 children diagnosed with ADHD aged 8 to 16 years. While each child took the test, the caregiver or teacher completed the SWAN scale's inattention sub-scale developed for assessing ADHD (SWANSON et al., 2021). The results showed that the number of times the raccoon did not leap indicated a significant correlation with the severity of the children's inattention. Furthermore, when the interval between leaps grows, this link becomes greater (i.e., in jumps where the time between them is longer than two seconds). This could be caused by the fact that while there is little time between jumps, kids are entirely absorbed in the game, but when there is a long delay, they find it difficult to pay attention (DELGADO-GÓMEZ et al., 2020).

The study's findings indicated that children with ADHD tended to make more skipped jumps and jumps near the gap. As a result, there was a significant correlation between the participants' distraction and the SWAN subscale's assessment of ADHD symptoms and expected behavior. According to the academics that wrote this report, this game has numerous primaries. In contrast to other methods that take longer than 15 minutes, this evaluation takes around seven minutes to complete. Due to its time-constrained nature, this feature makes the game particularly interesting in therapeutic contexts. Second, since a standard PC or other device, such as a tablet or smartphone, is suitable, this evaluation approach does not require complicated or expensive technology, such as virtual reality equipment. As a result, the findings of the research and the characteristics of this particular video game make it an excellent tool for aiding professionals in diagnosing ADHD (DELGADO-GÓMEZ et al., 2020).

2. INTERCULTURAL COMPETENCIES IN TEACHERS

For teachers to be fully equipped to apply intercultural education, the right competencies must be developed in them. The growth of one's personal and professional life depends significantly on the intercultural competence of teachers (DRANDIĆ, 2012). Teachers are required to be associates, producers, and facilitators of intercultural relationships, as well as to apply appropriate forms of teaching that would assist in developing conditions of mutual comprehending, intercultural sensitivity, equal interaction, and collaborative learning in the educational environment, reflecting the varied nature of a teacher's role in the procedure of intercultural education.

An intercultural approach is founded on understanding, approval, and acknowledgment of diversity and openness to it. In contrast, teachers' learned intercultural competencies are the foundation of effective intercultural education (BEDEKOVIĆ; ZRILIĆ, 2014). Intercultural competencies in teachers can be regarded mainly as an orientation that leads an individual's way of interacting with others rather than a mere set of particular talents. Attitudes, knowledge, abilities, and actions are all indicators of the abovementioned competencies. Intercultural competence includes cognitive (knowledge, attitudes), affective, and behavioral components (skills) (HRVATIĆ; PIRŠL, 2005; PIRŠL, 2005; JOKIKOKKO, 2009). It manifests in specific emotional and cognitive talents, flexible attitude and interaction, empathy and willingness to modify, and acceptance of alternative interpretations of reality. A communication style with a minor misunderstanding qualifies as intercultural competence, as it is being willed to work together to accomplish shared objectives. Respect, patience, humor, adaptability, empathy, openness, and curiosity are good behavioral traits that characterize someone skilled at communicating across cultural boundaries. All three of the dimensions above work together. They depend on and complement one another (BEDEKOVIĆ; ZRILIĆ 2014; HERCIGONJA, 2017). The effectiveness of conduct in a particular intercultural contact, which is mainly controlled by the aspects above, determines the level of intercultural competence of each individual or group (HERCIGONJA, 2017).

Various categories of teachers' intercultural competence can be found in the literature. For instance, McPherson (MACPHERSON, 2010) divides teachers' intercultural competencies into the following categories: constructed teachers' attitudes (understanding all pupils, having high standards of all students, assigning students' failure to a teacher's inadequate teaching approach, etc.), skills associated with cultural awareness (including cultural understanding and viewpoints of immigrants in the curriculum), skills relating to teaching and carrying out the curriculum, and skills relating to curriculum design.

The growth of intercultural competencies in teachers entails the following: good knowledge of one's own culture and the cultures of other people; continuous learning about one's own culture; a solid capacity to interact humanely and effectively; reverence for and embrace of pupils from other cultures; an elevated level of acceptance and understanding; established self-worth and self-esteem; interest and openness towards new experiences and information; and a recognition of numerous negative cultural stereotypes (ĐURANOVIĆ; KLASNIĆ, 2012).

3. TEACHER TRAINING FOR INTERCULTURAL EDUCATION

To enable a consistent application of intercultural principles in direct educational practice, a teacher must empower their own intercultural identity and model their pedagogical activity (Bedeković & Zrilić, 2014). Quality pedagogical, psychological, didactic, and professional training can prepare teachers to implement intercultural education by giving them the flexibility, creativity, and ability to adapt to challenging and complex educational situations (HRVATIĆ; PIRŠL, 2005). As a result, one should pay attention to the quality of the training offered during the studies on Teachers' Training Faculties and

concentrate on the development of teachers' intercultural abilities during their first education. Müller (2001) lists the following fundamental prerequisites for practical training in the field of intercultural education:

1) There should be general requirements for intercultural teachers' education curricula, including the following: a) intercultural education should be a required component of all teacher training; b) it should be heavily represented with more classes per semester over several years of study; c) in addition to learning theory, prospective teachers should have the chance to gain practical experience in a variety of settings (such as monolingual teaching, for example); d) proper preparation and coordination of methods for learning both theoretical and practical knowledge in this area while pursuing education; e) giving prospective teachers the option to specialize in the area of intercultural education; f) monitoring the quality of study programs based on internal (teaching competencies) and external (academic achievements of immigrant children) indicators; g) influencing the educational policies of the nation by participating in the work of local and national educational bodies to increase the academic achievement of immigrant children; h) planning numerous ways for teachers to continue their professional development after completing their first training in the field of intercultural education.

2) A focus on obtaining teaching credentials in the five areas listed below is required if one intends to help instructors improve their intercultural competence: teaching and learning competencies (didactic competencies, diagnostic competencies, students' integration and communication competencies, psycholinguistics qualifications in the field of multilingualism and multiculturalism, qualifications related to students' age and personality traits); b) a fundamental understanding of the sociology of immigration, including knowledge of heterogeneity as a social condition, including multilingualism and multiculturalism, the current status and significance of social policy pertaining to immigrants, and heterogeneity vs homogeneity; c) extensive decision-making and advice-giving skills (including dealing with immigrant parents, career guidance and decision-making skills, marketing-related abilities, decision-making skills, and collaboration with advisory bodies outside of schools); d) Personal experience with multiculturalism and multilinguism (linguistic and cultural awareness, awareness of racism and discrimination on a daily basis, knowledge of the history of immigration of particular ethnic groups, collaboration with teachers of immigrants' native languages); e) specific expertise in the field of supporting students' academic success (an analysis of academic achievements, a change in the selection system, specific opportunities related to immigration).

A teacher training program for intercultural competence should cover the following in order to foster the development of the aforementioned competencies:

1) a historical perspective on migration information and patterns, as well as migration in general;

2) a detailed ethno-sociological investigation that compares various cultural reference systems that prospective instructors may find in their pupils;

3) a research-based media approach to help teachers better understand the media, use it to illustrate a particular topic, and incorporate different media representations of specific topics into the

teaching process (this would connect their work to real-world scenarios and their students' prior knowledge);

4) a comparison of educational systems, which should go beyond just describing how schools operate in various nations and instead describe the principles that underpin them;

5) a greater understanding of human rights (concepts, history, national and international instruments, activities), as well as identifying the root of intolerance and xenophobia;

6) a sociolinguistic approach to language and research into its function in a child's cultural identity;

7) incorporating ideas from linguistics and psycholinguistics into language instruction, particularly in the learning process;

8) research into the dual functions of language in the process of teaching languages, including language as a tool for communication, a form of knowledge that one can use to learn other subjects and advance technology, and as a source of identity rooted in culture, religion, and family (first or native language);

9) understanding of the sociology of culture, including the permeability and rigidity of cultures, their symbolic components, and the power dynamics between various cultures;

10) reconsideration of the nature and significance of behavior, knowledge, and ability assessments made in schools;

11) attempting to find more equitable evaluation methods that would take into account the various cultural characteristics of pupils and the ways in which they see the educational process;

12) awareness of the actual situation of immigrants (including their economic, social, and legal standing, variety of statuses and groupings, and interactions with the native population);

13) direct interactions with immigrant and native communities to foster better family cooperation;

14) involvement in multicultural teams, since it is crucial to include immigrants not only among care recipients but also among service providers who have in-depth understanding of the aforementioned services (PEROTTI, 1995).

Teachers must be aware of their attitudes as well as any potential prejudice and stereotypes they may have about the specific ethnic groups in order to effectively teach immigrants or other national minorities (PEROTTI, 1995; MCALLISTER; IRVINE 2000; BANKS, 2001; JOKIKOKKO, 2009; CHU; GARCIA, 2014; FIVES; BUEHL, 2016; VRANJEŠEVIĆ; FROST, 2016; WHITAKER; KENNY 2016; CHERNG; DAVIS, 2017).

Additionally, it is essential to help instructors form appropriate ideas about the phenomena of cultural variety, which may be grouped into five linked categories (FIVES; BUEHL, 2016):

(1) Beliefs about one's cultural competence, which relates to teachers' perceptions of their abilities to appreciate cultural diversity in the classroom;

(2) Beliefs about the cultural context and environment, such as Beliefs about the effectiveness of the teaching process used in schools with a wide range of cultural and ethnic backgrounds;

(3) Beliefs regarding cultural knowledge and content that are connected to teaching content - what should be taught to students in the context of course instruction;

(4) Beliefs regarding culturally sensitive teaching methodologies;

(5) Beliefs regarding students from diverse ethnic backgrounds and their families. The viewpoints above will impact how a teacher reacts to children who identify as members of minority groups. Teachers could also help children see the benefits of cultural variety by fostering these attitudes (CIVITILLO et al. 2018).

Training teachers to consider different cultures, languages, backgrounds, and students' abilities while planning and implementing the teaching process is necessary to ensure that all students have an equal opportunity to succeed academically (PEROTTI, 1995; EWING, 2001; MÜLLER, 2001; GAY, 2002; JOKIKOKKO, 2009; CHU; GARCIA, 2014;). In light of the population movement, such training should also include instruction in English or another foreign language to facilitate student integration and provide a more practical education for those already enrolled in our nation's educational system Whitaker & Kenny, (2016). Because of this, it is crucial to preserve the native tongue of immigrants and ethnic minorities (MÜLLER, 2001; HRVATIĆ, 2007). A severe problem is the academic underachievement of immigrant children in a monolingual education system, which can lead to prejudice in the classroom. A student would be considered academically unsuccessful if they failed to thoroughly learn the language of the educational institution they had joined.

The following are five crucial components of culturally sensitive instruction:

1. A teacher's adoption of varied knowledge of cultural diversity, including knowledge of cultural values, tradition, communication, learning styles, contribution to the advancement of humanity, and interpersonal communication patterns characteristic of various ethnic groups.

2. Creating culturally appropriate curricula (incorporating information about other ethnic and cultural groups into the curriculum and allowing students to engage in a critical review of the social norms governing one's interactions with people from different cultures).

3. Demonstrating consideration for people from other cultures and making an effort to foster a learning community in the classroom (by fostering an environment in the classroom that is suitable for students of different ethnic backgrounds, demanding excellence from all students, and placing emphasis on a holistic approach and integrative learning).

4. Intercultural communication (respect for the unique linguistic characteristics of students, awareness of how students' intellectual development is culturally coded and heavily influenced by cultural socialization concerning communication styles, and respect for the various communication preferences of students).

5. Respecting ethnic diversity in the classroom by integrating various students' learning styles into teaching methods (GAY, 2002).

In order to realize intercultural education and ensure academic success for all students, it is essential to offer instructors the tools they need to include the provided components in the design and

implementation of the teaching material for all courses. Naturally, it should be remembered that the information provided needs to be more comprehensive and may be enlarged.

To create culturally and linguistically appropriate classroom environments, instructors must be trained to respect and incorporate their pupils' cultural and linguistic features (GAY, 2002; JOKIKOKKO, 2009; CHU; GARCIA, 2014). It is essential to realize that learning a particular language has unique, culturally conditioned implications for developing cognitive, intellectual, and linguistic abilities. Therefore, teachers should use various techniques to respect students' unique learning preferences. Similar to how immigrants and members of national minorities will succeed in the educational process if a teacher's method of instruction respects the cultural and linguistic characteristics of the relevant social groups (CHU; GARCIA, 2014).

The implementation of the idea of intercultural education is complex and results in discrimination against immigrant children and members of national minorities because of the power imbalance, dominance, and better social positions of the majority. Training future teachers to critically reexamine current school practice in this area is necessary. Additionally, teachers need to be prepared to combat prejudice and discrimination against members of national minorities and immigrants in both a local and broad social context (MCALLISTER; IRVINE, 2000; MÜLLER, 2001; EWING, 2001; CARIGNAN et al., 2005; JOKIKOKKO, 2009; GOŠOVIĆ, 2009; HOLLINS, 2011; VRANJEŠEVIĆ; FROST, 2016). Teachers must be prepared to spot hegemonic school practices and policies that hinder students from achieving their academic goals and improving their social standing. These children are frequently turned away from various educational possibilities. Training instructors to foster diverse viewpoints and implement numerous ideas and practices that come from a thoughtful way of thinking is essential (EWING, 2001; HOLLINS, 2011; VRANJEŠEVIĆ; FROST, 2016). Instead of just learning about interculturalism, it is crucial to foster a culture of critical thinking during academic endeavors so that students can reflect on their attitudes and the social context in which they currently exist. They can also develop critical competencies for implementing intercultural education, such as having an open mind toward others and demonstrating empathy and tolerance (LANAS, 2014).

Additionally, it is essential to remember that many instructors need to develop the intercultural education skills essential in the context of globalization and contemporary societal trends during their first education. The introduction of appropriate forms of professional development for all teachers is thus essential, in addition to developing intercultural skills in younger generations of teachers throughout their primary education (PEROTTI, 1995; BEDEKOVIĆ; ZRILIĆ, 2014). To further improve their skills in the area of intercultural education, teachers' professional development should support this. This growth can start with daily practice. According to Jokikokko (2009) and Hrvatić (2007), intercultural education may be seen as a continuous process in which teachers' intercultural learning is highly dependent on external influences. Based on the concepts of lifelong learning, which embrace formal and informal education, teaching should be viewed as an ongoing endeavor that includes initial professional development (improvement) and ongoing professional development.

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A variety of these talents might be differentiated based on examining the categories in which certain writers categorize the intercultural competencies of instructors. Teachers should cultivate the following particular competencies in the area of intercultural education in addition to ideal teaching qualities like respect, patience, empathy, openness, curiosity, and resourcefulness:

1. gaining knowledge of one's own culture as well as that of others;
2. comprehend the nuances of one's own and other cultures as well as the significance of their appreciation in the educational process;
3. Having a critical grasp of how one's culture interacts with other cultures and attempting to fix any issues with the way things are currently done;
4. adaptability in communication and conduct;
5. Multiple viewpoints;
6. Acceptance of diversity, particularly that of cultures;
7. Didactic and methodological abilities to comprehend and respect every student in the educational process, high standards for all students, self-evaluation of one's teaching approach, respect for cultural and ethnic diversity in the context of teaching, incorporating cultural knowledge into regular instruction, developing a relevant class context from a cultural and linguistic standpoint, etc.;
8. Competencies in cross-cultural communication, etc.

All school staff members should get training in applying the principles of intercultural education rather than only instructors (HRVATIĆ, 2007; JOKIKOKKO, 2009; GOŠOVIĆ, 2009). In the framework of multiculturalism, intercultural education is a process that calls for the participation of all those involved in the educational process and promotes equality and respect for each student's human rights without bias or prejudice. One may foster the circumstances necessary for social pluralism through mutual permeation, fostering encounters between cultures, and evaluating similarities and differences (DRANDIĆ, 2012).

4. METHOD

A literature review and meta-analysis are the research methodology used. Search engines including PsychInfo, ERIC, Pubmed, Academic Search Premier, Science Direct, and GateResearch were specifically used to find research. The search was conducted using the terms "ADHD", "Ethnic Minorities", "Video Games", "Intercultural Education", "Emotional Intelligence", and "Metacognition skills," with publication years ranging from 1994 to 2022. 101 articles were considered in the review of the bibliography. Most of these articles are connected by the treatment of ADHD in children from ethnic minorities and the use of video games to enhance their metacognitive abilities.

5. CONSIDERATIONS

Finally, we emphasize the significance of all digital technologies in the field of education and in ADHD training, which is highly effective and productive and facilitates and improves assessment, intervention, and educational procedures via mobile devices that bring educational activities everywhere (KOKKALIA et al., 2016; STATHOPOULOU et al., 2018; STATHOPOULOU et al., 2019; DRIGAS et al., 2020) various ICTs applications that are the main supporters of education (DRIGAS et al. 2006; DRIGAS; PETROVA 2014; BRAVOU; DRIGAS, 2019; XANTHOPOULOU et al., 2019; CHAIDI et al. 2021; BRAVOU et al. 2022; CHAIDI; DRIGAS, 2022;) and AI, STEM, and ROBOTICS that raise educational procedures to new performance levers (CHAIDI et al., 2021; LYTRA; DRIGAS, 2021; MITSEA et al. 2020; STAVRIDIS et al., 2017; KASTRITSI et al., 2019; STAVRIDIS; DOULGERI, 2018; STAVRIDIS et al., 2020; PAPAGEORGIOU et al., 2021; KASTRITSI et al. 2020; STAVRIDIS et al. 2022; STAVRIDIS et al., 2022) and games (KEFALIS et al., 2020; DOULOU; DRIGAS, 2022). Additionally, the development and integration of ICTs with theories and models of metacognition, mindfulness, meditation, and the cultivation of emotional intelligence (DRIGAS; MITSEA, 2021; KAPSI et al., 2020; CHAIDI; DRIGAS 2020; DRIGAS; MITSEA 2022; DRIGAS et al. 2022; DRIGAS; KARYOTAKI, 2019; DRIGAS et al. 2022; DRIGAS et al., 2022; BAMICHA; DRIGAS, 2022; KARYOTAKI et al., 2022; MITSEA et al., 2022; DRIGAS; PAPOUTSI, 2021), accelerates and improves more than educational practices and results, especially in intercultural children with ADHD, treating.

More specifically video games and other innovative technologies are increasingly being utilized to diagnose and treat ADHD in youngsters (DRIGAS et al., 2020; STATHOPOULOU, 2018; KOKKALIA et al., 2016). Utilizing executive, organizational, and metacognitive abilities is necessary when playing video games (CHAIDI; DRIGAS, 2022; PAPOUTSI et al. 2021; DRIGAS et al., 2021). Memory and concentration are the two most frequently used skills in games. While carrying out a task, memory, and attention are interconnected (DRIGAS; KARYOTAKI, 2019; GALITSKAYA; DRIGAS, 2021; KEFALIS et al., 2020; KULMAN et al., 2010). They play a critical role in the cognitive functioning of people with ADHD since longer attention spans are associated with increased working memory levels (ANGELOPOULOU et al., 2021; DOULOU; DRIGAS, 2022).

Despite significant gains in the proportion of children and adolescents obtaining professional therapies for the condition, ethnic minority youths still trail far behind in the rate of assessment and therapy for attention deficit hyperactivity disorder (ADHD). Racial and ethnic disparities in service consumption result from individual accessibility concerns and cultural and social factors. It is acknowledged that addressing patients' needs, reducing disparities in access to care for minorities, and enhancing service standards all depend on delivering culturally sensitive healthcare (CUCCARO et al., 1996; BUSSING et al., 1998). *Cultural competence* is a dynamic process that enables healthcare professionals to modify their approaches to children's particular cultural quirks and requirements. It does not matter a child's background, race, or cultural peculiarities; understanding and effective

communication are essential. Cultural awareness, knowledge, and skills are among the many aspects involved (CUCCARO et al., 1996; BUSSING et al., 1998). It is necessary to adapt approaches, assessments, and treatments to the cultural environment of minority children, according to research on cultural competency skills.

In the context of contemporary education and upbringing, the teaching profession may be highly complex, necessitating both high-quality formal education for teaching staff members and ongoing professional growth via practice. To effectively implement intercultural education, the teaching staff must be trained to help students build their intercultural abilities. The ability of the teaching staff to implement intercultural education depends on how they were trained for the required field; teachers' intercultural education training can be achieved both during initial teacher education and through various professional development strategies. Therefore, the critical area for social development should be the need to improve educational standards and teacher professional development.

REFFERENCES

1. ANGELOPOULOU, E.; DRIGAS, A.; KARABATZAKI, Z. Assessing working memory in general education students for ADHD detection. **Research Society and Development**, v. 10, n. 10, p. e138101018766, 2021. DOI:10.33448/rsd-v10i10.18766

2. BAKOLA, L.; DRIGAS, A. Technological development process of emotional Intelligence as a therapeutic recovery implement in children with ADHD and ASD comorbidity. **International Journal of Online & Biomedical Engineering**, v. 16, n. 3, p. 75-85, 2020. https://doi.org/10.3991/ijoe.v16i03.12877

3. BAMICHA, V.; DRIGAS, A. The Evolutionary Course of Theory of Mind - Factors that facilitate or inhibit its operation & the role of ICTs. **Technium Social Sciences Journal**, v. 30, p. 138-158, 2022. DOI:10.47577/tssj.v30i1.6220

4. BAMICHA, V.; DRIGAS, A. ToM & ASD: The interconnection of Theory of Mind with the social-emotional, cognitive development of children with Autism Spectrum Disorder. The use of ICTs as an alternative form of intervention in ASD. **Technium Social Sciences Journal,** v. 33, p. 42-72, 2022. https://doi.org/10.47577/tssj.v33i1.6845

5. BANKS, A. J. Citizenship education and diversity – implications for teacher education. **Journal of Teacher Education**, v. 52, n. 1, p. 5-16, 2001.

6. BEDEKOVIĆ, V.; ZRILIĆ, S. Interkulturalni odgoj i obrazovanje kao čimbenik suživota u multikulturalnom društvu [Intercultural education as a factor of coexistence in a multicultural society]. **Magistra Iadertina**, v. 9, n. 1, p. 111-122, 2014.

7. BRAVOU, V.; DRIGAS, A. A contemporary view on online and web tools for students with sensory & learning disabilities. **iJOE**, v. 15, n. 12, p. 97, 2019. https://doi.org/10.3991/ijoe.v15i12.10833

8. BRAVOU, V.; OIKONOMIDOU, D.; DRIGAS, A. Applications of Virtual Reality for Autism Inclusion a review. **Retos,** v. 45, p. 779-785, 2022. https://doi.org/10.47197/retos.v45i0.92078

9. BUSSING, R.; SCHOENBERG, N. E.; PERWIEN, A. R. Knowledge and information about ADHD: Evidence of cultural differences among African American and White parents. **Social Science and Medicine**, v. 46, p. 919–928, 1998.

10. CARIGNAN, N.; SANDERS, M.; POURDAVOOD, G. R. Racism and Ethnocentrism: Social Representations of Preservice Teachers in the Context of Multi – and Intercultural Education. **International Journal of Qualitative Methods**, v. 4, n. 3, p. 1-19, 2005.

11. CHAIDI, E.; KEFALIS, C.; PAPAGERASIMOU, Y.; DRIGAS, A. Educational robotics in Primary Education. A case in Greece. **Research, Society and Development,** v. 10, n. 9, p. e17110916371-e17110916371, 2021. https://doi.org/10.33448/rsd-v10i9.16371

12. CHAIDI, I.; DRIGAS, A. Parents' Involvement in the Education of their Children with Autism: Related Research and its Results. **International Journal of Emerging Technologies In Learning (IJET)**, v. 15, n. 14, p. 194-203, 2020. https://doi.org/10.3991/ijet.v15i14.12509

13. CHAIDI, I.; DRIGAS, A. "Parents' views Questionnaire for the education of emotions in Autism Spectrum Disorder" in a Greek context and the role of ICTs. **Technium Social Sciences Journal**, v. 33, p. 73-91, 2022. DOI:10.47577/tssj.v33i1.6878

14. CHAIDI, I.; DRIGAS, A.; KARAGIANNIDIS, C. ICT in special education. **Technium Soc. Sci. J**., v. 23, n. 187, 2021. https://doi.org/10.47577/tssj.v23i1.4277

15. CHAIDI, I.; DRIGAS, A. Digital games & special education. **Technium Social Sciences Journal,** v. 34, p. 214-236, 2022. https://doi.org/10.47577/tssj.v34i1.7054

16. CHERNG, H.-Y. S.; DAVIS, A. L. Multicultural Matters: An Investigation of Key Assumptions of Multicultural Education Reform in Teacher Education**. Journal of Teacher Education**, v. 70, n. 3, p. 219-236, 2017.

17. CHU, S.-Y.; GARCIA, S. Culturally Responsive Teaching Efficacy Beliefs of In-Service Special Education Teachers. **Remedial and Special Education**, v. 35, n. 4, p. 218-232, 2014.

18. CIVITILLO, S.; JUANG, L.; SCHACHNER, M. Challenging beliefs about cultural diversity in education: A synthesis and critical review of training with pre-service teachers. **Educational Research Review**, v. 24, p. 67-83, 2018.

19. CREPALDI, Maura; COLOMBO, Vera; MOTTURA, Stefano; ANTONIETTI, Alessandro. "Antonyms: A Computer Game to Improve Inhibitory Control of Impulsivity in Children with Attention Deficit/Hyperactivity Disorder (ADHD)". **Information,** (Switzerland), v. 11, n. 4, p. 230, 2020. https://doi.org/10.3390/info11040230

20. CUCCARO, M.; WRIGHT, H.; ROWND, C. *et al*. Brief Report: professional perceptions of children with developmental difficulties: the influence of race and socioeconomic status. **J Autism Developmental Disorders**, v. 26, n. 4, p. 461-469, 1996.

21. DELGADO-GÓMEZ, David; SÚJAR, Aaron; ARDOY-CUADROS, Juan; BEJARANO-GÓMEZ, Alejandro; AGUADO, David; MIGUELEZ-FERNANDEZ, Carolina; BLASCO-FONTECILLA, Hilario; PEÑUELASCALVO, Inmaculada. "Objective Assessment of Attention-Deficit Hyperactivity Disorder (ADHD) Using an Infinite Runner-Based Computer Game: A Pilot Study". **Brain Sci**., v. 10, p. 716, 2020. https://doi.org/10.3390/brainsci10100716

22. DOULOU, A.; DRIGAS, A. Electronic, VR & Augmented Reality Games for Intervention in ADHD. **Technium Social Sciences Journal**, v. 28, p. 159, 2022. https://doi.org/10.47577/tssj.v28i1.5728

23. DRANDIĆ, D. Interkulturalne kompetencije nastavnika i barijere u interkulturalnoj komunikaciji [Teachers' Intercultural Competences and Barriers in Intercultural Communication]. *In*: POSAVEC, K.; SABLIĆ, M. (Eds.). **Pedagogija i kultura - Zbornik radova Interkulturalna pedagogija**: prema novim razvojima znanosti o odgoju. Zagreb: Hrvatsko pedagogijsko društvo, 2012. str. 83-92.

24. DRIGAS, A.; BAKOLA, L. The 8x8 Layer Model Consciousness-Intelligence-Knowledge Pyramid, and the Platonic Perspectives International Journal of Recent Contributions from Engineering. **Science & IT (iJES)**, v. 9, n. 2, p. 57-72, 2021. https://doi.org/10.3991/ijes.v9i2.22497

25. DRIGAS, A.; DEDE, S.; DEDES, D. E. Mobile and other applications for mental imagery to improve learning disabilities and mental health. **International Journal of Computer Science Issues (IJCSI)**, v . 17, n. 4, p. 18-23, 2020. DOI:10.5281/zenodo.3987533

26. DRIGAS, A.; KARYOTAKI, M. Executive Functioning and Problem Solving: A Bidirectional Relation. **International Journal of Engineering Pedagogy (iJEP),** v. 9, n. 3, 2019. https://doi.org/10.3991/ijep.v9i3.10186

27. DRIGAS, A.; MITSEA, E. Neuro-Linguistic Programming & VR via the 8 Pillars of Metacognition X 8 Layers of Consciousness X 8 Intelligences. **Technium Soc. Sci. J**., v. 26, n. 1, p. 159–176, 2021. https://doi.org/10.47577/tssj.v26i1.5273

28. DRIGAS, A.; MITSEA, E. Neuro-Linguistic Programming & VR via the 8 Pillars of Metacognition X 8 Layers of Consciousness X 8 Intelligences. **Technium Soc. Sci. J**., v. 26, n. 1, p. 159–176, 2021.

29. DRIGAS, A.; MITSEA, E. Conscious Breathing: a Powerful Tool for Physical & Neuropsychological Regulation. The role of Mobile Apps. **Technium Social Sciences Journal**, v. 28, p. 135-158, 2022. https://doi.org/10.47577/tssj.v28i1.5922

30. DRIGAS, A.; MITSEA, E.; SKIANIS, C. Clinical Hypnosis & VR, Subconscious Restructuring-Brain Rewiring & the Entanglement with the 8 Pillars of Metacognition X 8 Layers of Consciousness X 8 Intelligences. **International Journal of Online & Biomedical Engineering (IJOE)**, v. 18, n. 1, p. 78-95, 2022. https://doi.org/10.3991/ijoe.v18i01.26859.

31. DRIGAS, A.; MITSEA, E.; SKIANIS, C. Neuro-Linguistic Programming, Positive Psychology & VR in Special Education. **Scientific Electronic Archives,** v. 15, n. 1, 2022. https://doi.org/10.36560/15120221497

32. DRIGAS, A.; MITSEA, E.; SKIANIS, C. Virtual Reality and Metacognition Training Techniques for Learning Disabilities. **SUSTAINABILITY**, v. 14, n. 16, p. 10170, 2022. https://doi.org/10.3390/su141610170

33. DRIGAS, A.; MITSEA, E.; SKIANIS, C. Subliminal Training Techniques for Cognitive, Emotional and Behavioural Balance. The role of Emerging Technologies. **Technium Social Sciences Journal**, v. 33, p. 164-186, 2022. https://doi.org/10.47577/tssj.v33i1.6881

34. DRIGAS, A.; PAPOUTSI, C. Nine Layer Pyramid Model Questionnaire for Emotional Intelligence, International. **Journal of Online & Biomedical Engineering,** v. 17, n. 7, 2021. https://doi.org/10.3991/ijoe.v17i07.22765

35. DRIGAS, A.; PETROVA, A. ICTs in speech and language therapy. **International Journal of Engineering Pedagogy (iJEP)**, v. 4, n. 1, p. 49-54, 2014. https://doi.org/10.3991/ijep.v4i1.3280

36. DRIGAS, A.; SIDERAKI, A. Emotional Intelligence in Autism. **Technium Soc. Sci. J**., v. 26, n. 80, 2021. https://doi.org/10.47577/tssj.v26i1.5178

37. DRIGAS, A.; KARYOTAKI, M. Attention and its Role: Theories and Models. **International Journal of Emerging Technologies in Learning**, v. 14, n. 12, p. 169-182, 2019. https://doi.org/10.3991/ijet.v14i12.10185

38. DRIGAS, A.; PAPOUTSI, C.; SKIANIS, C. Metacognitive and Metaemotional Training Strategies through the Nine-layer Pyramid Model of Emotional Intelligence. **International Journal of Recent Contributions from Engineering, Science & IT (iJES)**, v. 9, n. 4, p. 58-76, 2021. https://doi.org/10.3991/ijes.v9i4.26189

39. DRIGAS, Athanasios; ANGELOPOULOU, Effrosyn; KARABATZAKI, Zoi. "Assessing Working Memory in General Education Students for ADHD Detection". **Research Society and Development**, v. 10, n. 10, p. e138101018766, 2021. https://doi.org/10.33448/rsd-v10i10.18766

40. DRIGAS, Athanasios; MITSEA, Eleni; SKIANIS, Charalabos. "The Role of Clinical Hypnosis & VR in Special Education". **International Journal of Recent Contributions from Engineering Science & IT (iJES)**, v. 9, n. 4, p. 4–17, 2021. https://doi.org/10.3991/ijes.v9i4.26147

41. DRIGAS, A. S.; DRIGA, M. A. "ADHD in the Early Years: Pre-Natal and Early Causes and Alternative Ways of Dealing". **International Journal of Emerging Technologies in Learning (iJET)**, v. 15, n. 13, p. 95–102, 2019. https://doi.org/10.3991/ijoe.v15i13.11203

42. DRIGAS, A. S.; MITSEA, E. "The 8 Pillars of Metacognition". **International Journal of Emerging Technologies in Learning (iJET)**, v. 15, n. 21, p. 162–178, 2020. https://doi.org/10.3991/ijet.v15i21.14907

43. DRIGAS, A. S.; MITSEA, E. "8 Pillars X 8 Layers Model of Metacognition Educational Strategies, Exercises & Trainings." **International Journal of Online and Biomedical Engineering (iJOE)**, v. 17, n. 8, p. 115–134, 2021. https://doi.org/10.3991/ijoe.v17i08.23563

44. DRIGAS, A. S.; MITSEA, E. "Metacognition, Stress – Relaxation Balance & Related Hormones". **International Journal of Recent Contributions from Engineering Science & IT (iJES)**, v. 9, n. 1, p. 4–15, 2021. https://doi.org/10.3991/ijes.v9i1.19623

45. DRIGAS, A. S.; PAPOUTSI, C. "A New Layered Model on Emotional Intelligence". **Behav Sci**., (Basel), v. 8, n. 5, p. 45, 2018. https://doi.org/10.3390/bs8050045

46. DRIGAS, A. S.; PAPPAS, M. "The Consciousness-Intelligence-Knowledge Pyramid: An 8x8 Layer Model." **International Journal of Recent Contributions from Engineering, Science & IT (iJES)**, v. 5, n. 3, p. 14-25, 2017. https://doi.org/10.3991/ijes.v5i3.7680

47. DRIGAS, A. S.; KARYOTAKI, M.; SKIANIS, C. An Integrated Approach to Neuro-development, Neuroplasticity and Cognitive Improvement. **International Journal of Recent Contributions from Engineering, Science & IT (iJES)**, v. 6, n. 3, p. 4-18. 2018. https://doi.org/10.3991/ijes.v6i3.9034

48. DRIGAS, A. S.; KOUKIANAKIS, L.; PAPAGERASIMOU, Y. "An elearning environment for nontraditional students with sight disabilities.". **Frontiers in Education Conference, 36th Annual**. IEEE, 2006. p. 23-27. https://doi.org/10.1109/FIE.2006.322633

49. DRIGAS, A.; MITSEA, E. 8 Pillars X 8 Layers Model of Metacognition: Educational Strategies, Exercises &Trainings. **International Journal of Online & Biomedical Engineering, (IJOE)**, v. 17, n. 8, 2021. https://doi.org/10.3991/ijoe.v17i08.23563

50. ĐURANOVIĆ, M.; KLASNIĆ, I. Interkulturalna kompetencija učitelja u primarnom obrazovanju – pravilo ili izuzetak? [Intercultural Competence of Initial Education Teachers – Rule or Exception?].

In: POSAVEC, K.; SABLIĆ, M. (eds.). **Pedagogija i kultura – Zbornik radova Interkulturalna pedagogija: prema novim razvojima znanosti o odgoju**. Zagreb: Hrvatsko pedagogijsko društvo, str. 93-99.

51. EWING, J. N. Teacher Education: Ethics, Power, and Privilege. **Teacher Education and Special Education**, v. 24, n. 1, p. 13-24, 2001.

52. FIVES, H.; BUEHL, M. M. Teachers' Beliefs, in the Context of Policy Reform. **Policy Insights from the Behavioral and Brain Sciences**, v. 3, n. 1, p. 114-121, 2016.

53. GALITSKAYA, V.; DRIGAS, A. The importance of working memory in children with Dyscalculia and Ageometria. **Scientific Electronic Archives**, v. 14, n. 10, 2021. https://doi.org/10.36560/141020211449

54. GAY, G. Preparing for culturally responsive teaching. **Journal of Teacher Education**, v. 53, p. 106-116, 2002.

55. GIOIA, G. A.; ISQUITH, P. K.; GUY, S. C.; KENWORTHY, L. Behavior rating inventory of executive functions. **Child Neuropsychol**, v. 6, p. 235–238, 2000.

56. GOŠOVIĆ, R. Interkulturalno obrazovanje [Intercultural education]. *In*: AKSENTIJEVIĆ, Z. (eds.). **Ne prolazi ulicom bez traga: ka interkulturalnosti**. Beograd: Grupa 484, 2009. str. 7-20.

57. GRESHAM, F. M.; ELLIOTT, S. N. **Social Skills Rating System Manual**. Circle Pines, MN: American Guidance Services. Inc. Publishers building, 1990.

58. HAKIMIRAD, Elham; KASHANI-VAHID, Leila; HOSSEINI, Marzieh Sadat; MORADI, Hadi. *In*: **IEEE Conference on International Serious Games Symposium (ISGS)**, Tehran, Iran, 26-26 Dec. 2019.

59. HERCIGONJA, Z. Interkulturalni odgoj i obrazovanje kao imperativ razvoja interkulturalnih kompetencija [Intercultural education and education as imperative for the development of intercultural competencies]. **Socijalne teme**, v. 4, n. 4, p. 103-115, 2017.

60. HOLLINS, R. E. Teacher Preparation For Quality Teaching. **Journal of Teacher Education**, v. 62, n. 4, p. 395-407, 2011.

61. HRVATIĆ, N. Interkulturalna pedagogija: nove paradigme [Intercultural pedagogy: new paradigms]. **Pedagogijska istraživanja**, v. 4, n. 2, p. 241-254, 2007.

62. HRVATIĆ, N. I.; PIRŠL, E. Kurikulum pedagoške izobrazbe i interkulturalne kompetencije učitelja [Curriculum of pedagogical training and intercultural competence of teachers]. **Pedagogijska istraživanja**, v. 2, n. 2, p. 256-266, 2005.

63. JOKIKOKKO, K. The role of significant others in the intercultural learning of teachers. **Journal of research in international education**, v. 8, n. 2, p. 142-163, 2009.

64. KAPSI, S.; KATSANTONI, S.; DRIGAS, A. The Role of Sleep and Impact on Brain and Learning. **Int. J. Recent Contributions Eng. Sci. IT (IJES),** v. 8, n. 3, p. 59-68, 2020. https://doi.org/10.3991/ijes.v8i3.17099

65. KARYOTAKI, M.; BAKOLA, L.; DRIGAS, A.; SKIANIS, C. Women's Leadership via Digital Technology and Entrepreneurship in business and society. **Technium Social Sciences Journal**, v. 28, n. 1, p. 246–252, 2022. https://doi.org/10.47577/tssj.v28i1.5907

66. KASTRITSI, T.; PAPAGEORGIOU, D.; SARANTOPOULOS, I.; STAVRIDIS, S DOULGERI, Z. Guaranteed active constraints enforcement on point cloud-approximated regions for surgical applications 2019. **International Conference on Robotics and Automation (ICRA)**, p. 8346-8352, 2019. DOI:10.1109/ICRA.2019.8793953

67. KASTRITSI, T.; SARANTOPOULOS, I.; STAVRIDIS, S.; PAPAGEORGIOU, D.; DOULGERI, Z. Manipulation of a Whole Surgical Tool Within Safe Regions Utilizing Barrier Artificial Potentials Mediterranean. **Conference on Medical and Biological Engineering and Computing**, 2020. DOI:10.1007/978-3-030-31635-8_193

68. KEFALIS, C.; KONTOSTAVLOU, E. Z.; DRIGAS, A. The Effects of Video Games in Memory and Attention. **Int. J. Eng. Pedagog. (IJEP)**, v. 10, n. 1, p. 51-61, 2020. https://doi.org/10.3991/ijep.v10i1.11290

69. KOKKALIA, G.; DRIGAS, A. S.; ECONOMOU, A. Mobile learning for preschool education. **International Journal of Interactive Mobile Technologies (IJIM)**, v. 10, n. 4, p. 57-64, 2016. https://doi.org/10.3991/ijim.v10i4.6021

70. KULMAN, I.; STONER, G.; RUFFOLO, L.; MARSHALL, S.; SLATER, J.; DYL, A.; CHENG, A. Teaching executive functions, self-management, and values through popular video-game play. *In*: SCHRIER, K.; GIBSON, D. (Eds). **Designing games for ethics**: Models, techniques and frameworks. Hershey PA: IGI Global, 2010.

71. LANAS, M. Failing intercultural education? 'Thoughtfulness' in intercultural education for student teachers. **European Journal of Teacher Education**, v. 37, n. 2, p. 171-182, 2014.

72. LYTRA, N.; DRIGAS, A. STEAM education-metacognition–Specific Learning Disabilities. **Scientific Electronic Archives,** v. 14, n. 10, 2021. https://doi.org/10.36560/141020211442

73. MACPHERSON, S. Teachers' Collaborative Conversations About Culture: Negotiating Decision Making in Intercultural Teaching. **Journal of Teacher Education**, v. 61, n. 3, 271-286, 2010.

74. MARZOCCHI, G. M.; RE, A. M.; CORNOLDI, C. **BIA – Batteria Italiana per l'ADHD** Trento: Erickson, 2010.

75. MASLOW, A. H. "A Theory of Human Motivation". **Psychological Review**, v. 50, p. 370–396, 1943. https://doi.org/10.1037/h0054346

76. MASLOW, A. H. **Motivation and personality**. 3rd ed. Boston, MA: Addison-Wesley, 1987.

77. MCALLISTER, G.; IRVINE, J. Cultural competency and multicultural teacher education. **Review of Educational Research**, v. 70, n. 1, p. 3-24, 2000.

78. MCALLISTER, G.; IRVINE, J. Cultural competency and multicultural teacher education. **Review of Educational Research**, v. 70, n. 1, p. 3-24, 2000.

79. MITSEA, E.; DRIGAS, A.; SKIANIS, C. Breathing, Attention & Consciousness in Sync: The role of Breathing Training, Metacognition & Virtual Reality. **Technium Social Sciences Journal**, v. 29, p. 79-97, 2022. https://doi.org/10.47577/tssj.v29i1.6145

80. MITSEA, E.; LYTRA, N.; AKRIVOPOULOU, A.; DRIGAS, A. Metacognition, Mindfulness and Robots for Autism Inclusion. **Int. J. Recent Contributions Eng. Sci. IT (IJES)**, v. 8, n. 2, p. 4-20, 2020. https://doi.org/10.3991/ijes.v8i2.14213

81. MÜLLER, R. Teacher Training with Emphasis on Immigrant Pedagogy: Statement of Reasons and Curricular Building Blocks. **European Education**, v. 33, n. 3, p. 54-67, 2001.

82. PAPAGEORGIOU, D.; STAVRIDIS, S.; PAPAKONSTANTINOU, C.; DOULGERI, Z. Task geometry aware assistance for kinesthetic teaching of redundant robots. *In:* **IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)**, Prague, Czech Republic, 2021, p. 7285–7291. https://doi.org/10.1109/IROS51168.2021.9636209

83. PAPOUTSI, C.; DRIGAS, A.; SKIANIS, C. Virtual and augmented reality for developing emotional intelligence skills. **Int. J. Recent Contrib. Eng. Sci. IT (IJES)**, v. 9, n. 3, p. 35-53, 2021. https://doi.org/10.3991/ijes.v9i3.23939

84. PELHAM, W. E.; GNAGNY, E. M.; GREENSLADE, K. E.; MILICH, R. Teacher ratings of DSMIII-R symptoms for disruptive behaviour disorder. **J Am Acad Child Adolesc Psychiatry**, v. 31, p. 210–218, 1992.

85. PEROTTI, A. **Pledoaje za interkulturalni odgoj i obrazovanje** [A plaidoyer for intercultural education]. Zagreb: Eduka, 1995.

86. PIRŠL, E. Verbalna i neverbalna interkulturalna komunikacija [Verbal and non-verbal intercultural communication]. *In:* BENJAK, M.; POŽGAJ HADŽI, V. (ur.): Bez predrasuda i stereotipa. Rijeka: Izdavački centar Rijeka, 2005. str. 50-90.

87. PRINS PIER, J. M.; TEN BRINK, Esther; DOVIS, Sebastiaan; PONSIOEN, Albert; GEURTS HILDE, M.; VRIES, Marieke; VAN DER OORD, Saskia. ''Braingame Brian'': Toward an Executive Function Training Program with Game Elements for Children with ADHD and Cognitive Control Problems. **GAMES FOR HEALTH JOURNAL: Research, Development, and Clinical Applications**, v. 2, n. 1, 2013. DOI: 10.1089/g4h.2013.0004

88. PROGRAMA DE ENTRENAMIENTO DE INSTRUCCIONES ESCRITAS NIVEL MEDIO. 2013. Available online: http://www.orientacionandujar.es/2013/05/23/programa-de-entrenamiento-deintruccionesescritasnivel-medio/. Accessed on: 20 May 2014.

89. STATHOPOULOU, A.; KARABATZAKI, Z.; TSIROS, D.; KATSANTONI, S.; DRIGAS, A. Mobile apps the educational solution for autistic students in secondary education. **Journal of Interactive Mobile Technologies (IJIM)**, v. 13, n. 2, p. 89-101, 2019. https://doi.org/10.3991/ijim.v13i02.9896

90. STATHOPOULOU, A. *et al*. Mobile assessment procedures for mental health and literacy skills in education. **International Journal of Interactive Mobile Technologies**, (IJIM), v. 12, n. 3, p. 21-37, 2018. https://doi.org/10.3991/ijim.v12i3.8038

91. STAVRIDIS, S.; PAPAGEORGIOU, D.; DROUKAS, L.; DOULGERI, Z. **Bimanual crop manipulation for human-inspired robotic harvesting**. [S. l.: s. n.], 2022. https://doi.org/10.48550/arXiv.2209.06074

92. STAVRIDIS, S.; PAPAGEORGIOU, D.; DOULGERI, Z. Dynamical system based robotic motion generation with obstacle avoidance. **IEEE Robotics and Automation Letters,** v. 2, n. 2, p. 712-718, 2017. DOI:10.1109/LRA.2017.2651172

93. STAVRIDIS, S.; FALCO, P.; DOULGERI, Z. Pick-and-place in dynamic environments with a mobile dual-arm robot equipped with distributed distance sensors. **IEEE-RAS 20th International Conference on Humanoid Robots**, 2020. DOI: 10.1109/HUMANOIDS47582.2021.9555672

94. STAVRIDIS, S.; PAPAGEORGIOU, D.; DOULGERI, Z. Kinesthetic teaching of bi-manual tasks with known relative constraints. *In:* **Conference**: 2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS-2022) Kyoto, Japan

95. STAVRIDIS, S.; DOULGERI, Z. Bimanual assembly of two parts with relative motion generation and task related optimization 2018. **IEEE/RSJ International Conference on Intelligent Robots and Systems**, 2018. DOI:10.1109/IROS.2018.8593928

96. SWANSON, J. M.; SCHUCK, S.; PORTER, M. M.; CARLSON, C.; HARTMAN, C. A.; SERGEANT, J. A.; CLEVENGER, W.; WASDELL, M.; MCCLEARY, R.; LAKES, K. *et al*. "Categorical and Dimensional Definitions and Evaluations of Symptoms of ADHD: History of the SNAP and the SWAN Rating Scales". **Int. J. Educ. Psychol. Assess**., v. 10, p. 51–70, 2012.

97. VRANJEŠEVIĆ, J.; FROST, D. Stories From Intercultural Education in Serbia: Teacher Leadership and Parent Participation. **European Education**, v. 48, p. 63-78, 2016.

98. VRANJEŠEVIĆ, J.; FROST, D. Stories From Intercultural Education in Serbia: Teacher Leadership and Parent Participation. **European Education**, v. 48, p. 63-78, 2016.

99. WHITAKER, T.; KENNY, M. Assessing Students' Journeys From Theory To Practice In Intercultural Education. **All Ireland Journal of Teaching and Learning in Higher Education (AISHE-J)**, v. 8, n. 2, p. 2551-2521, 2016.

100. WROŃSKA, Natalia; ZAPIRAIN, Begoña; GARCÍA, Mendez-Zorrilla Amaia. An iPad-Based Tool for Improving the Skills of Children with Attention Deficit Disorder. **International Journal of Environmental Research and Public Health,** v. 12, n. 6, p. 6261-6280, 2015. DOI:10.3390/ijerph120606261

101. XANTHOPOULOU, M.; KOKALIA, G.; DRIGAS, A. Applications for Children with Autism in Preschool and Primary Education. **Int. J. Recent Contributions Eng. Sci. IT (IJES)**, v. 7, n. 2, p. 4-16, 2019. https://doi.org/10.3991/ijes.v7i2.10335