

# WHY TO USE ANIME WHILE TEACHING PEOPLE WITH ADHD: BETWEEN FREEDOM AND RIGHT

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**ABSTRACT: Why to use Anime while Teaching People with ADHD: between Freedom and Right.**

The field of special pedagogy has received increased global attention in recent years. This resulted in the development of a variety of schooling (or non-schooling) and of teaching methods that are tailored to the needs of non-neurotypical individuals. Regardless of whether or not they wish to be “healed”, their needs require special consideration. This study aims to determine if incorporating anime into teaching methods would benefit individuals with ADHD. In this article, we will consider the desires of people with ADHD, the functioning of their brains, the effect of prescribed medications, as well as the impact of video and the need for it in relation to contemporary educational models and methods. In support of this, three short surveys conducted at the onset of the pandemic will be presented, along with anime recommendations for each education field. Do teachers and professors have the freedom to teach as they wish, the right to use what methods they want, or the responsibility to find and choose the best educational methods for their students? Do the neurodiverse individuals have the freedom to discontinue their education or the right to receive a proper education? Which prevails?

**Keywords:** *ADHD, anime, special pedagogy, brain waves, surveys.*

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## **Introduction**

Anime can be used as a valuable modern teaching method. It appeals to young people, including many of the neurodiverse, such as those with depression or ADHD (Attention Deficit Hyperactivity Disorder), conditions which are increasingly common among students and pupils. ADHD

is a neurodevelopmental disorder that affects around 5% of the world's population<sup>1</sup>, more recent studies showing that the percentage can reach up to 13% for boys and 6% for girls<sup>2</sup>. Not everyone who has ADHD wants to be cured, and some of those who do, cannot be cured so easily, therefore we need to find an effective education solution for them. This is a challenge for teachers and trainers in all fields of activity, and it was even more during the pandemic, which required online teaching.

Due to the fact that schools are designed for neurotypicals, more and more people have started unschooling their children, especially those with neuropsychiatric problems, and to discourage this, new schools are constantly emerging and propose various forms of schooling or teaching methods. Some states have even legalized Individualized Education Programs (IEPs), meaning special treatment for students with problems who go to schools for neurotypicals. This turns out to be destructive, because those who benefit from IEPs in high school (more time on tests, fewer subjects, less to learn, etc.) often fail to get into neurotypical-destinated universities and then they have existential crises, because until then they have been lied to by the system that they can do what everyone else does without being encouraged to develop their real capabilities at their true potential. In reality, this kind of IEP is necessary in very few cases, those that involve mental retardation and there also with some limit, which is not the case for those with ADHD, whose logical-mathematical and emotional intelligence often exceeds the average. Of course, sometimes the result of IQ tests can be around 2.94 points lower than that of a neurotypical<sup>3</sup>, without reflecting the reality, due to the difficulty of concentrating on something perceived by them as being "boring". The same can happen to asthmatic people, for example, who, because they are not well oxygenated or are concerned about a mild regular asthma attack, cannot concentrate on the IQ test well enough. There is also a big correlation between asthma and ADHD, those with

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1 American Psychiatric Association, American Psychiatric Association, *Diagnostic and statistical manual of mental disorders*, 5th ed, American Psychiatric Association, Washington, D.C., 2013.

2 CDC, "Data and Statistics About ADHD", *Centers for Disease Control and Prevention*, <https://www.cdc.gov/ncbddd/adhd/data.html>, accessed on August 13th, 2023.

3 Devon Frye, "Study: Low IQ Scores Do Not Reflect Low Intelligence in Adults with ADHD", *ADDitude*, <https://www.additudemag.com/low-iq-in-adhd-adults-may-not-reflect-intelligence/>, accessed on November 22nd, 2022.

asthma being 45% more likely to have comorbid ADHD<sup>4</sup>. So, these tests do not always reflect one's real intelligence level.

If not through IEPs, how can we help those with ADHD who attend neurotypical schools? I believe it is important not to stress them, to accept that they cannot and do not need to be constantly attentive or present (they compensate during periods of hyperactivity), and to introduce teaching methods that they can also be attentive to, while incorporating their interests. For neurobiological reasons that we will explain throughout the paper, one of the most common passions of people with various neuropsychiatric disorders is related to video content (video games/ anime/ movies, etc.). The importance of video materials is more and more discussed in the last period, when its use has become almost mandatory in most pedagogical systems<sup>5</sup>, although there is a current that is radically opposed to the technology. However, I will still present why it is worth integrating. To support the arguments, I will present case studies, survey-based research, and of course, I will cite appropriate sources from related fields.

## ADHD Brain

Life with ADHD is always fascinating and exciting, "like that of a cat that seems sleepy whenever there isn't something important to it to get super-focused on," said one of the subjects surveyed for this paper. Of course, it is normal for cats to be quiet, "drowsy" when they are not hungry and do not have to hunt or defend, but it is not normal for humans these days, except for children, who until the age of about 7-10-12 year old are hyperactive when something captures their interest, otherwise being inattentive or sleepy. However, when hormonal development occurs, these things must change. There are children who are born this way, and even for a child, they are too hyperactive, disorganized and inattentive, often being called "heedlessly" (they don't check when crossing the street, even though they have

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4 Samuele Cortese et al., „Association between attention deficit hyperactivity disorder and asthma: a systematic review and meta-analysis and a Swedish population-based study”, *The Lancet Psychiatry*, vol. 5, nr. 9, 2018, <https://www.sciencedirect.com/science/article/pii/S2215036618302244>, accessed on November 22nd, 2022.

5 Cynthia J. Brame, „Effective Educational Videos: Principles and Guidelines for Maximizing Student Learning from Video Content”, *CBE Life Sciences Education*, vol. 15, nr. 4, 2016, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5132380/>, accessed on November 22nd, 2022.

been taught, etc.), either because of hereditary causes or due to substances received during pregnancy, or due to strangulation with the umbilical cord, that can lead to brain trauma, nutrients deficit, genetical causes and so on , Others acquire this condition due to physical or emotional trauma, where ADHD comes as a “coping mechanism”<sup>6</sup>.

To better understand what ADHD is, we will present the structure of the ADHD brain that affects 4 main parts of the brain: frontal lobe, limbic system, basal nuclei and reticular activating system<sup>7</sup> where 3 main neurotransmitters do not work well: dopamine (+GABA), noradrenaline and serotonin<sup>8</sup>.

- ✦ Frontal lobe – also involved in attention, executive functions and organization. Here, the activity recorded on the EEG is abnormal in the case of those with ADHD, which we will present later when we discuss the frequencies on which the brain works.
- ✦ The limbic system - regulates emotions and is also involved in attention, hyperactivity, anger, fear, anxiety, etc.
- ✦ Basal nuclei – if they present problems they can lead to inattention or impulsivity/compulsivity (rituals/tics). This is where most of the dopamine is produced. Dopamine conditions attention, which is activated when we can foresee the satisfaction that an action will bring us. Dopamine is produced more precisely in the substantia nigra pars compacta, which together with the substantia nigra pars reticularia (which produces GABA) has an important role in movement, being involved including in nervous tics and Parkinson’s disease.
- ✦ The reticular activating system – which deals with the body’s most important functions such as heartbeat, breathing, senses (visual, auditory, etc.) or the production of hormones and neurotransmitters. Three main neurotransmitters are involved in ADHD, and all are (also) produced here: noradrenaline (which deals with alertness/

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6 Stephen V. Faraone et al., „The World Federation of ADHD International Consensus Statement: 208 Evidence-based conclusions about the disorder”, *Neuroscience and Biobehavioral Reviews*, vol. 128, 2021.

7 Silver, „The ADHD Brain: Neuroscience Behind Attention Deficit”, *ADDitude*, <https://www.additudemag.com/adhd-neuroscience-101/>, accessed on November 22nd, 2022.

8 Kenneth Blum et al., „Attention-deficit-hyperactivity disorder and reward deficiency syndrome”, *Neuropsychiatric Disease and Treatment*, vol. 4, nr. 5, 2008, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2626918/>, accessed on November 22nd, 2022.

calmness and can cause inattention or hyperactivity/impulsivity, being produced by the same ganglionic neurons that deal with vision), a part of the dopamine (from which noradrenaline is also derived) and a part of serotonin, the well-known hormone of happiness, which is mostly produced in the intestines.

In the brains of ADHD patients have been found some structural abnormalities, in slightly variable proportions, such as<sup>9</sup>: low grey matter density, abnormalities in white matter structure, lower than normal total brain volume, slower than normal cortical maturation into adulthood, reduced cortical thickness in adults, especially of the cortical network responsible for focused attention.

### The Treatment for ADHD

Classic treatments for ADHD largely involve stimulant pills such as: Ritalin, Concerta (methylphenidate: C<sub>14</sub>H<sub>19</sub>NO<sub>2</sub>), Desoxyn (methamphetamine: C<sub>10</sub>H<sub>15</sub>N)/ Adzenys (amphetamine: C<sub>9</sub>H<sub>13</sub>N) or Adderall (methylphenidate and amphetamine combination). Most of these substances are stimulants that increase dopamine. Interestingly, these drugs can be more dangerous than cocaine, although they have a similar effect. Classic treatments for ADHD largely involve stimulant pills such as: Ritalin, Concerta (methylphenidate: C<sub>14</sub>H<sub>19</sub>NO<sub>2</sub>), Desoxyn (methamphetamine: C<sub>10</sub>H<sub>15</sub>N)/ Adzenys (amphetamine: C<sub>9</sub>H<sub>13</sub>N) or Adderall (methylphenidate and amphetamine combination). Most of these substances are stimulants that increase dopamine. Interestingly, some researchers found that these drugs can be more dangerous than cocaine, although they have a similar effect<sup>10</sup>, they are more difficult to remove from the body, and it appears that they increase the risk of psychosis over time<sup>11</sup>.

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9 Liji Thomas, „How does ADHD Affect the Brain?“, *News-Medical.Net*, <https://www.news-medical.net/health/How-does-ADHD-Affect-the-Brain.aspx#:~:text=ADHD%20is%20associated%20with%20abnormally,potent%20neurotransmitters%20to%20regulate%20mood>, accessed on May 30th, 2021.

10 National Institute on Drug Abuse, „How is methamphetamine different from other stimulants, such as cocaine?“, <https://www.drugabuse.gov/publications/research-reports/methamphetamine/how-methamphetamine-different-other-stimulants-such-cocaine>, accessed on May 30th, 2021.

11 Lauren Moran et al., „Psychosis with Methylphenidate or Amphetamine in Patients with ADHD“, *The New England journal of medicine*, vol. 380, nr. 12, 2019.

Some doctors recommend natural treatments as much as possible, such as Ginkgo Biloba GABA, Griffonia, Rhodiola, Ginseng, Ashwagandha, Omega3, etc., each suitable for each type of ADHD and it seems that the effects are very good, as claimed by the very famous Dr. Daniel Amen, who divided ADHD into seven main types and showed why stimulants do not work well in all cases. Dr. Amen also says that half of those diagnosed with ADHD do not show symptoms of hyperactivity, so the fact that the APA changed the name of the condition from ADD to ADHD in the latest DSMs is wrong<sup>12</sup>. Also, quite a few of those with ADHD are also violent, and often those also have ODD.

However, both allopathic and natural medicines are expensive, and psychodiagnosis and medical follow-up are even more costly. Because of the lack of psychiatric culture among ordinary people and school personnel, many people with ADHD are not even diagnosed, but instead just mocked for their failures, so drug treatment is ruled out from the start. What is left for the school, which must educate some students who are unable to concentrate?

### **The Education of People with ADHD**

If the first solution, namely providing those with problems with incentives to allow them to join the mainstream, does not work in all cases, perhaps the solution is to speak to them in their language. Education is defined in a Romanian dictionary<sup>13</sup> as a set of methods and measures applied systematically (and in an organized framework) with the aim of training and developing intellectual, moral, physical, etc. qualities. of children, youth, people, or human collectives. What methods can be used to successfully educate those with ADHD?

Special pedagogy textbooks have rather general and poor advice for those with ADHD, some of which are even ineffective, such as continuing to attract attention, or moving to the front of the class to be seen and not be distracted<sup>14</sup>. In general, these things do more harm than good because a

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12 Daniel Amen, „The 7 Types of ADHD and How to Treat Them Webinar”, în *Additude*, 2014, [https://www.additudemag.com/webinar/types-adhd-diagnosis-treatment-daniel-amen/?src=embed\\_ss](https://www.additudemag.com/webinar/types-adhd-diagnosis-treatment-daniel-amen/?src=embed_ss), accessed on May 30th, 2021.

13 Institutul de Lingvistică al Academiei Române, *Micul dictionar academic*, vol. I–II, 2, Univers Enciclopedic, București, 2010.

14 Robert Slavin, *Educational Psychology: Theory and Practice*, a XII-a, Pearson, London, 2018.

stressed-out student does not remember what he learns in situations that he associates, consciously or unconsciously, with a negative experience. In such cases, the student feels bullied and forced to witness something his brain can no longer handle, which is why he took a break.

Of course, some courses or textbooks of Educational Psychology identify certain things necessary in teaching those with ADHD, such as dividing the lessons into short sessions, with breaks in between, recommended being periods of a maximum of 15 minutes, in which to give examples of the students' passions, and the introduction of video or multimedia materials, audio books, role play, and the wide range of activity choices<sup>15</sup>. Reducing strong stimuli such as bright lights or noises is also necessary because many ADHD patients also have sensory sensitivity and giving a clear list of steps to follow in solving problems or helping and encouraging them to create one can be very useful for structuring the scattered mind<sup>16</sup>. These things are also useful in the case of neurotypicals, being much more effective a course that has a logical thread and presents clear niche requirements formulated in causal order.

The new pedagogical trends present in school models such as Montessori, Sudbury or Freinet offer enormous freedom to pupils and students, whom they treat with respect regardless of their situation. Respect towards a student is also respect towards his parents, towards his (future) children and towards the spouse they will have. Respect also puts on the shoulders of the students and the responsibility of what they are expected to become. Education is done in the perspective of the purpose it has, often a profession or another way of social integration. Knowing that the world has expectations from them (to the best of their ability, not more than they can, because that would create anxiety) will also make the "unconscious" with ADHD more accountable.

The special education systems mentioned above try to include students' passions and talents in the educational system and develop them, on the principle that not everyone has to be good at everything, but we all have to contribute to society with the talents that we received from the divinity

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15 Student Learning Portal, *SEND Teaching Methods and Assessment. Student Learning Portal*, 2021, <https://www.studentlearningportal.net/send-teaching-methods-and-assessment>, accessed on May 30th, 2021.

16 Kelvin Seifert, Rosemary Sutton, *Educational Psychology*, The Global Text Project, a II-a, Jacobs Foundation, Zurich, 2009.

and trained so we can be useful. This is one of the things that people with special needs also wish for, as we will see in the first survey of this paper.

## Methodology

This study aims to find out how people with ADHD want and should be taught. For this, I chose to do a phenomenological research based on 3 surveys. I will present the period of collecting data, and the rest of the methodology for each one in particular, since they were conducted consequently.

Some general remarks that apply to all three surveys are that they were meeting the ethical criteria for this type of research. They were all anonymous: they did not collect any identification data, therefore no additional approval regarding the GDPR was required. They were very short surveys. All the questions addressed can be seen in the pictures below. Beside these questions, there was the possibility to type after them “if there is something else you want to tell me”.

All the pictures below (excepting the 4<sup>th</sup> and the 11<sup>th</sup> figures, which resulted after a more detailed analysis in Excel) are automatically generated by Google Forms. All three surveys were self-administrated.

It should also be mentioned that in Facebook groups for neuro-diverse people, most of them do not mind that their differences such as ADHD or DID are called mental disorders, illnesses, or issues. This applies for all categories of neurosis or psychosis but also for neurological problems such as epilepsy. At least at the time I conducted these surveys no one felt offended, and these expressions were frequently used by the members.

## Survey 1

To see how they want to be schooled, I surveyed 210 people (81 of them have ADHD) from international Facebook groups dedicated to people with various neuropsychiatric conditions. The answers were similar regardless of the disorder that the respondents had, so we deduced that they all wanted, mainly, the same things (see fig. 1, 2, 3, 4). The question was “What would be the ideal school for someone with your mental issue(s)?” It would have/It would be more...”. All neurological and psychiatric issues were put in the same category of “mental disorders/issues” despite the thing that neurological ones are not always correlated with the psychiatric ones.

What mental disorder(s) do you have?

210 responses

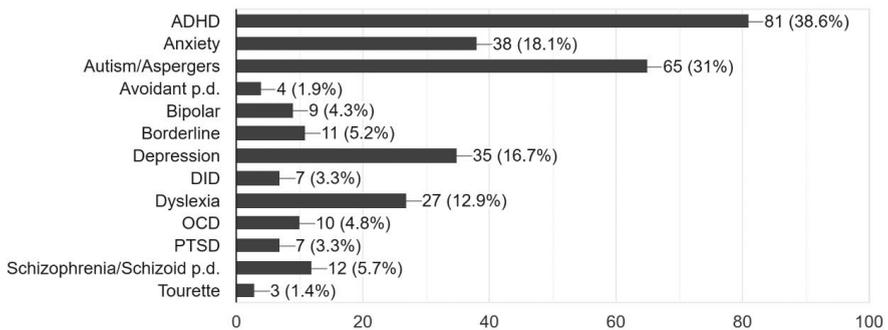


Fig. 1

Your gender is...?

210 responses

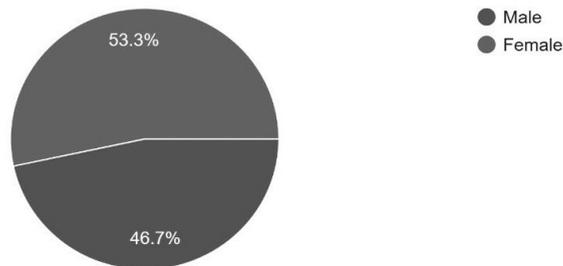


Fig. 2

Some requirements specifically expressed by the 81 people with ADHD, as we can see in the 4<sup>th</sup> figure, were for the school to have/ be more:

- + Centered on each student's passions, future plans and qualities – 43 (34.83%)
- + Hands on – 40 (32.4%)
- + Interesting subjects – 40 (32.4%)
- + Well organized but flexible – 39 (31.59%)
- + Without attendance requirement – 38 (30.78%)
- + Visual content/ video trainings/ recorded lessons – 31 (25.11%)

HOW would be the Perfect School (high school, university) for someone with your mental issue(s)?

It would have/be more ...

210 responses

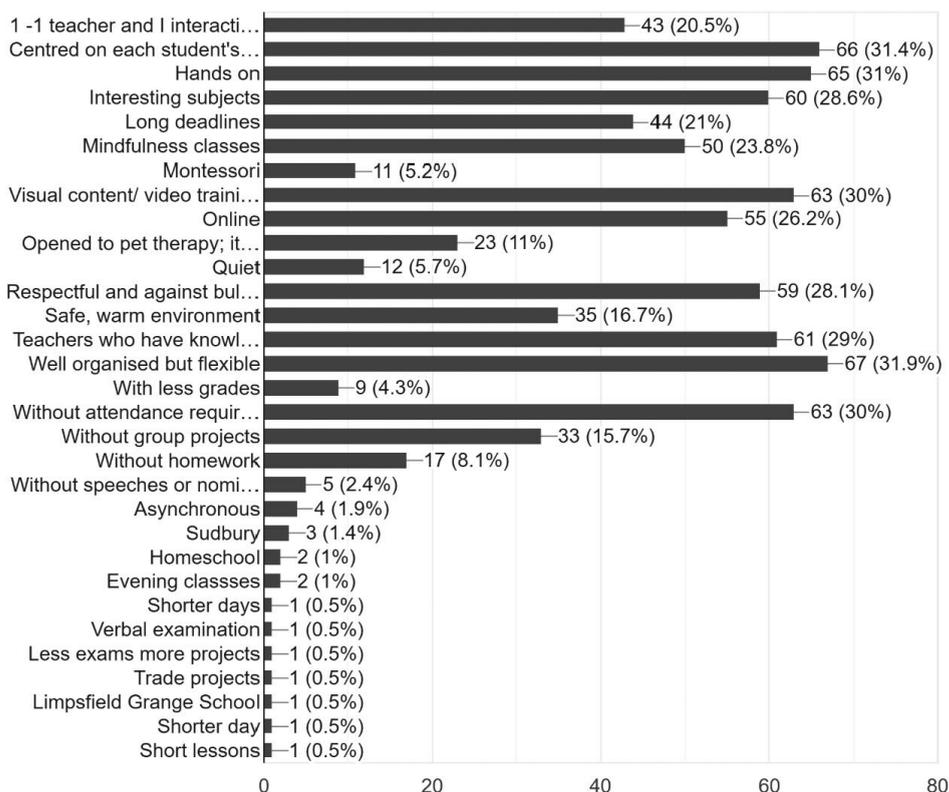


Fig. 3

These were the characteristics chosen by over 25% of the subject with ADHD. It should be noted that most of those who answered the questionnaire are adults who have finished school or are in high school or university, 112 women and 98 men. Many of them selected multiple conditions, one condition often having comorbidities. This survey was conducted in May 2020, during the pandemic.

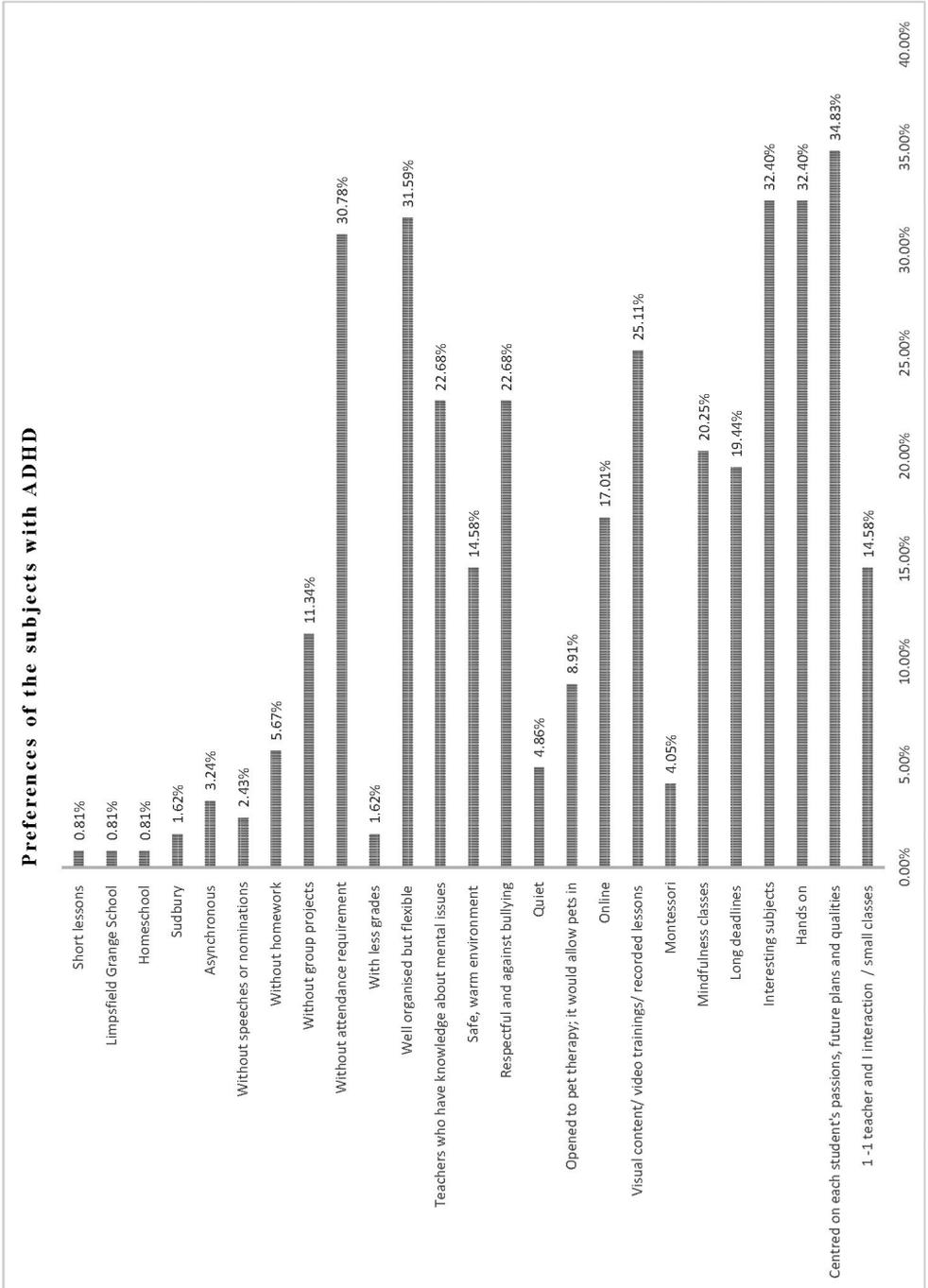


Fig. 4

## Survey 2

Surprisingly, it seems that most people with ADHD do not want to become neurotypical!

When I asked them if they wanted to heal, I received answers like “Heal? You wanna say there is something wrong with us? :)”, “No way! I wouldn’t be myself anymore, without it” or “ADHD is our superpower. Mine made me successful”. They probably took inspiration from Bill Gates or other successful personalities known to have ADHD.

In fact, those with ADHD are known to operate longer on Theta waves, the frequencies that various therapists teach stressed people how to use for healing. Normal people cannot enter so easily the Theta waves during the day, needing special meditations for this and a suitable framework for sleep<sup>17</sup>. Those with ADHD are already there, so I think they should be taught how to use them for healing or other beneficial purposes, rather than invasively plucked from that frequency.

This questionnaire was made via Facebook in international groups of those diagnosed with ADHD, receiving 150 responses in June 2020.

Would you like to heal your ADHD?

150 responses

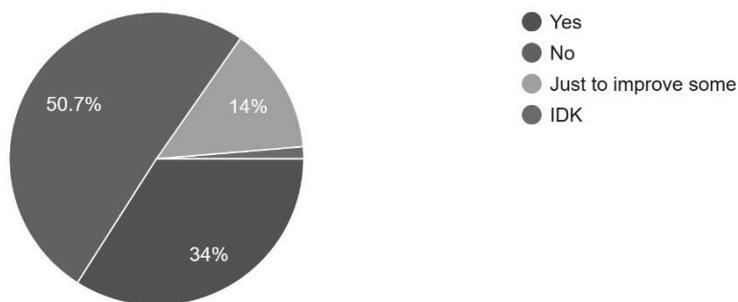


Fig. 5

17 Michal Golan, „The Power of Theta Brainwave to Heal”, *Learn Religions*, <https://www.learnreligions.com/theta-waves-for-healing-1732258>, accessed on May 30th, 2021.

Your gender is...

150 responses

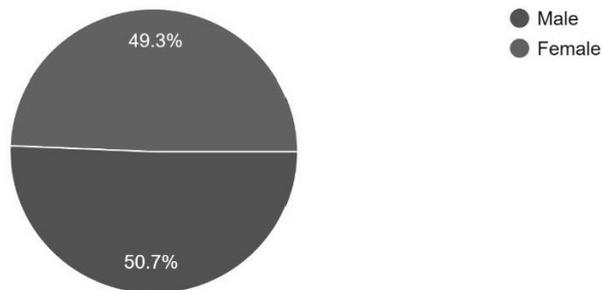


Fig. 6

## Anime in Education

If they do not think they need to be cured, and have the freedom to choose so, we have to find a solution to educate them as they are, because access to education should be a right to prevail. The solution I propose is to introduce anime in the teaching methods used with them. This may also drown out some of their above desires such as more visual content.

Cinema education has existed for many years now, and it was addressed also in Romania. There is also cinema therapy, used even by the clergy<sup>18</sup>. But anime is not getting enough attention at the moment, and I think it deserves special consideration. Some other scientists thought the same, since they approached in some studies the idea of teaching through anime, video games and even discussing how the attention of *otakus* (the so called 'anime geeks') works<sup>19</sup>. Not only do teachers and professors have the right to choose appropriate education methods for their students, but they should also feel responsible for upholding the students' rights to a good education.

18 Sorina Daniela Dumitrache, *Cinematrapia de la evadare la ancorare în cotidian*, București, SPER, 2015, p. 95.

19 Sunji Lee, „Educational methods and cognitive modes: Focusing on the difference between Bernard Stiegler and N. Katherine Hayles”, *Educational Philosophy and Theory*, vol. 52, nr. 4, 2020, Routledge, <https://doi.org/10.1080/00131857.2019.1594780>, accessed on November 22nd, 2022.

Animes bring several considerable benefits:

1. They are video material, which presents coloured motor elements. These things catch the attention of those with ADHD or other problems from the neuropsychiatric spectrum, regardless of their age or gender. They can also offer a valuable learning resource for those who have difficulty understanding the logic of language and learning conceptually (dyslexia), as we can see in some surveys in this study.

2. They can be used in chromotherapy. Light spectrums have different frequencies, and unlike movies, anime takes on different colour themes depending on the specific style, genre, etc and these things seem to influence brain activity and stimulate the production of certain hormones that can balance ADHD<sup>20</sup>.

3. Animes increase the wave on which the brains of those with ADHD function. Neurotypicals work on frequencies Delta (0.5-3Hz) when they sleep, Theta (3-8Hz) when they wake up (and still want to sleep), Alpha (8-12Hz) when they meditate, read or watch TV, Beta (12-40Hz) when they are at school, work or walking on the street, Gamma (40-100) when they are ultra-concentrated, and in the case of mystics we find even waves Epsilon (0-0.5Hz, requires the temporary stop of the heart and breathing) and Lambda (100- 200Hz). There are probably many others that man is called to access through spiritualization, but which we cannot measure, as normal EEGs cannot even measure Epsilon and Lambda waves. People with ADHD have different brains in this regard. They spend more time in Theta waves and prefer to enter Alpha, but Beta is perceived as too intrusive. They most likely developed this condition because they needed it, as a defence mechanism generated automatically by the brain to maintain life in situations where reality was too painful. As a result, Beta waves, or waves of consciousness, are regarded as invasive. A solution to bring them closer to what mainstream call normality, scientists use neurofeedback to bring them on alpha or beta waves<sup>21</sup>.

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20 Yannick Pauli, „ADHD Natural Treatment: Color Therapy”, *Ezine*, <https://ezine-articles.com/?ADHD-Natural-Treatment:-Color-Therapy&id=6353671>, accessed on May 30th, 2021.

21 Arash Mohagheghi et al., „A Randomized Trial of Comparing the Efficacy of Two Neurofeedback Protocols for Treatment of Clinical and Cognitive Symptoms of ADHD: Theta Suppression/Beta Enhancement and Theta Suppression/Alpha Enhancement”, *BioMed Research International*, vol. 2017, 2017, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5340952/>, accessed on November 22nd, 2022.

To avoid the risks of allopathic medicine, which purports to regulate faulty physical and chemical synaptic transmission in ADHD brains and given that many people are undiagnosed or unable to afford treatments, a much more accessible solution is to use anime to stimulate the Alpha waves in those with ADHD's brains. This can help neurotypical minds relax. The same as they are obtained in the brain and through reading<sup>22</sup>. So, if we support reading, we should also support anime. No tests have yet been done on the brains of people watching anime, but there are times when anime can increase the Beta waves of those who watch them, because they incite deep thinking and also induce the state of consciousness, of presence, then motivate people to beautiful social activities. However, tests were done on people playing video games or watching different videos and it was proved that their Alpha and Beta waves has increased while their anxiety decreased<sup>23</sup>.

4. By watching anime, people can learn (besides other things): how normal and important it is to accept the others, to give up prejudices; be interested in learning about new cultures; interreligious and intercultural similarities and differences; practical ways to relate to different people according to their temperamental types; to outline their character, acquiring new values; to identify oneself in contact with various types of people and cultural patterns; to develop their emotional and social intelligence; Japanese language and culture (and other languages and cultures by interacting with fans from all over the world).

5. Anime can be used in teaching a wide number of subjects, because it seriously and relevantly approaches many areas such as:

### ***History, art and culture***

There is a multitude of historically relevant anime such as *Kenshin*<sup>24</sup> or *Hakuouki* which present true historical events with real characters, con-

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22 David Daiku Trowbridge, „My brain waves while reading and meditating”, <https://still-breathing.net/my-brainwaves-while-reading-and-meditating>, accessed on May 30th, 2021.

23 Mohsen Dadashi et al., „Effects of Increase in Amplitude of Occipital Alpha & Theta Brain Waves on Global Functioning Level of Patients with GAD”, *Basic and clinical neuroscience*, vol. 6, nr. 1, 2015.

24 Valentina-Andrada Minea, „Perspectivă ortodoxă asupra modelului de pocăință propus de Rurouni Kenshin るろうに剣心”, *Mitropolia Ardealului*, vol. I (36), nr. 3, 2021.

structured considering all available details. The society of the time is reproduced correctly, including using the specific language.

Brilliant animes such as *Grave of the Fireflies* which present the post-war drama have been awarded countless times and various animes such as *Maria the Virgin Witch* or *Tanya the Evil* which present subtle details of the wars are highly appreciated by critics also because if they are documented well, it is a lot easier to draw something that complex than it is to find actors who can do these things well.

Many anime tackle cultural themes, which they either treat comparatively (with Europe in general: *Croisée In A Foreign Labyrinth*) or use to show unique Asian particularities through aspects such as geishas (*Mitsuwano*), theatrical dance (*Kabukibu*), rakugo (*Shouwa Genroku Rakugo Shinjuu*), tea ceremony (*Hyouge Mono*), shoji game (*Sangatsu no Raion*), calligraphy (*Barakamon*), music (*Nitaboh*) and others. There are even some animes that teach you how anime is made! (*Shirobako*).

### *Medicine, psychiatry, and psychology*

In an article about using anime in education, anime is described as a 'cultural encyclopaedia' that can teach people a lot about neurodiversity<sup>25</sup>. "The school serves a number of purposes, including building trust, teaching children about the importance of teamwork and working with others"<sup>26</sup>. Because scientists<sup>27</sup> discovered that the most important reasons why people watch anime are to build self-confidence and find meaning in life, anime at school is a great asset in doing so. Given that many people with ADHD also have RSD, developing self-confidence is vital for their social functioning.

One of the reasons why anime is so successful is that the psychological profiles of the characters are very deep and realistic constructed. By watching anime, many people learn how to integrate socially, how to behave in a relationship (*Say I love You*), or how to overcome depression (*A*

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25 Kevin, „The role of anime in education”, *Suki Desu*, <https://skdesu.com/en/the-role-of-anime-in-education/>, accessed on November 23rd, 2022.

26 Ioan-Gheorghe Rotaru, „Current Values of Education and Culture”, *RAIS Conference Proceedings*, 2021, Zenodo, p. 87, <https://zenodo.org/record/5507021>, accessed on August 12th, 2023.

27 Adam Ray et al., „Psychological Needs Predict Fanship and Fandom in Anime Fans”, *The Phoenix Papers*, vol. 3, nr. 1, 2017, p. 60.

whisker away). There are special psychology-themed animes such as Inu x Boku SS, ReLife, Charlotte, Erased, Psycho-Pass that went viral on Netflix and Crunchyroll worldwide. Animes that show medical professionals involved in actions and explain diseases (Comical Psychosomatic Medicine) or show the usefulness of medicinal plants (Snow White with the Red Hair) are also appreciated.

### *Philosophy and Morality*

Mostly 18+, animes in this category, including Ghost in the Shell and FullMetal Alchemist, are the most thought-provoking, even after years of viewing. This type of anime that tackles ethical, transhumanist, or existentialist themes, or animes that combines science and religion, such as the classic Evangelion, are still the subject of much debate. Somali and the Forest Spirit is the most acclaimed philosophical anime released in 2020; it explores the transformative power of parental love.

Shinsekai Yori, an anthropological anime that requires a lot of patience to be understood, presents anthropological truths. The Promised Neverland, a wake-up call about the importance of vegetarianism in relation to cannibalism and experiments on children (here can also be counted Serial Experiments Lain) in orphanages, adopts some Van Gogh motifs, and it comes to mind as darker anime that leaves much to be pondered. Miyori no Mori has been declared a good anime for teaching moral education to children<sup>28</sup>.

### *Exact and business sciences*

Anime such as Cells at Work (biology) and Dr. Stone (the evolution of science from the Stone Age to the present) are used in classroom by some young teachers of my generation. The same can be done with animes such as Ace Attorney (law, administration), Spice and Wolf (economics), Steins;Gate (physics, science fiction), ecology (Earth Maiden Arjuna, an anime that features exceptional Christian spirituality in addition to eco-

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28 Wachyu Nur Fauzy, „Conserving Nature Representation in Miyori no Mori Anime as a Teaching Media for Children’s Moral Education”, *E3S Web of Conferences*, vol. 317, 2021, EDP Sciences, [https://www.e3s-conferences.org/articles/e3sconf/abs/2021/93/e3sconf\\_icens2021\\_02020/e3sconf\\_icens2021\\_02020.html](https://www.e3s-conferences.org/articles/e3sconf/abs/2021/93/e3sconf_icens2021_02020/e3sconf_icens2021_02020.html), accessed on November 23rd, 2022.

gy), Moyashimon (chemistry), etc. A nice study shows how you can teach fluid mechanics based on Miyazaki's 'Castle in the sky'<sup>29</sup>.

### **Religion**

Typically, when we think of anime, we envision ninja or samurai cartoons, and martial arts is a religious, spiritual component that aims to purify and discipline its practitioners. However, religion in anime does not stop there. The universes of popular animes like *Naruto*, that approaches the universality of morality and religious symbols, *Dragon Ball* (deification, saints), and *Shaman King* (constructive religious criticism) are based on the mythologies and philosophies of world real religions. Of course, there are also more particular anime that only deal with certain religions or components of a religion such as *Blue Exorcist* (Christianity), *Death Note* (theodicy), *Kimi no na wa* (Shinto rituals, sacred sake, defying time), and even animes that deal with religions comparatively, like *Saint Onii-san* doing comparative catechisms between Buddhism and Christianity. Actually, religion is that important when it comes to anime studies that there are already many scientific books and studies approaching this. Anime also contributes to religion relativization this millennium and these influences should be researched more. Teachers and professors should choose carefully the animes used as class. In certain periods animes were presenting religion as they are claiming themselves. Later, this started to change<sup>30</sup>. Even so, even after this change, anime can be successfully used in teaching about religious mission under its different aspects including intercultural and interreligious dialogue<sup>31</sup>.

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29 S. Ryu et al., „Fluid Mechanics Education Using Japanese Anime: Examples from «castle in the Sky» by Hayao Miyazaki”, *Physics Teacher*, vol. 58, nr. 4, 2020, American Institute of Physics Inc., <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082528828&doi=10.1119%2f1.5145464&partnerID=40&md5=ebc1328738b27ac7bec9c9b7af61d7ae> accessed on November 23rd, 2022.

30 Valentina-Andrada Minea, „Religious Relativization through Anime in the Post-Truth Era”, *Journal of Media Studies*, vol. The Mass Media In The Post-Truth Era. The Transfiguration Of The Press?, nr. 10, 2021, <https://jms.hyperion.ro/index.php/revista-de-studii-media-journal-of-media-studies-nr-10-2021-no-10-2021/>, accessed on August 13th, 2023.

31 Valentina-Andrada Minea, „Interreligious Dialogue In Anime: Future Perspectives For Interreligious Communication Research”, *Meridian Critic*, vol. 40, nr. 2, 2022, <http://meridiancritic.usv.ro//index.php?page=2-2022-ro>, accessed on August 13th, 2023.

### *Literature and language*

In addition to the opportunity to learn Japanese<sup>32</sup> (easier if watched with subtitles in the learner's native language, regardless of how well one speaks other languages) and English (Most animes receive English subtitles on the day of release in Japan, and later some receive dubbed version), animes provide a vast amount of access to literature.

Pollyana, the book that is sold in many bookstores in Romania, has an anime adaptation from 1986! Many other classic novels, including *Les Misérables*, *Romeo and Juliet*, and *The Count of Monte Cristo*, have been adapted into Japanese animated films. World Masterpiece Theater is a series that animates various great works of world literature, and Studio Ghibli, which received the most fan votes in the third survey, has animated outstanding novels such as Diana Wynne Jones' *Howl's Moving Castle*.

However, this is not the only way in which anime can be used to teach literature. Most animes are based on a manga (comic book) or a (light) novel written specifically for animation or coming as a consequence of the animation's success, such as *Naruto*, which was firstly a manga, over time receiving several novels.

Thereby, *Chihayafuru* or *Choyaku Hyakunin Isshu: Uta Koi* are based on the anthology *One Hundred Poets of Mount Ogura (Hyakunin Isshu)*, on which *karuta*, the Japanese card game, is also based. *Bungou Stray Dogs* and *Bungou to Alchemist* have characters based on great Asian writers (*Dazai*, *Soseki*, *Akutagawa*, *Dostoevski*), but also occidentals such as *H.P. Lovecraft*, one of the greatest horror and fantasy writers of all time.

### **Survey 3**

To determine the extent to which neurodiverse individuals benefit from the therapeutic effects of the anime industry, I decided to inquire with them. This survey was distributed to participants from international groups for people diagnosed with various neuropsychiatric disorders between February and May of 2020 (121 with ADHD). It received 700 responses.

People were asked if there is anyone that watches anime to feel better about their disorder and, if so, what anime helps them and how. The

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32 Y.-H. Chan, N.-L. Wong, L.-L. Ng, „Japanese language students' perception of using anime as a teaching tool”, *Indonesian Journal of Applied Linguistics*, vol. 7, nr. 1, 2017, Indonesia University of Education, pp. 93–104.

responses were unexpected in numerous ways. In addition to the abundance of recommended anime, their effects on certain neurodiverse groups are substantial.

Dyslexics have reported improved reading and language comprehension, while those with ADHD have reported enhanced concentration and a tension release that reduces hyperactivity. Many of them also have comorbid RSD (Rejection Sensitive Dysphoria) and just like with depressives, anime balances them emotionally and motivates them. It helps autistics integrate socially and feel valued, and those with psychosis say they empathize with the characters. Those with DID (Dissociative Identity Disorder) have described how they co-consciously watch anime with their alters who are also anime fans and how they choose animes together that they can identify with. For instance, someone told me that they watch Fruits Basket or Naruto because they have as alters a cat or a kitsune (mythical fox) that they did not choose, it just came. These individuals are unique, but they are empathetic, fascinating, and their intelligence can be significantly above average. They deserve an education tailored to their needs. Society would greatly benefit from their proper integration.

A few individuals stated that they do not watch anime, either because they cannot understand them, or because they cannot tolerate the loud voices or bright lights in the special effects (mostly autistic here, although sensory sensitivity is also present in patients with certain types of ADHD or Epilepsy). Anime in which the female voices are too shrill or the light alternation in certain contexts is unbearable for the sensitive ones are, thankfully, rare. However, this aspect must be considered when selecting anime for educating those with special needs.

Below the survey results where we can see which are the animes that they considered most helpful for their mental health:

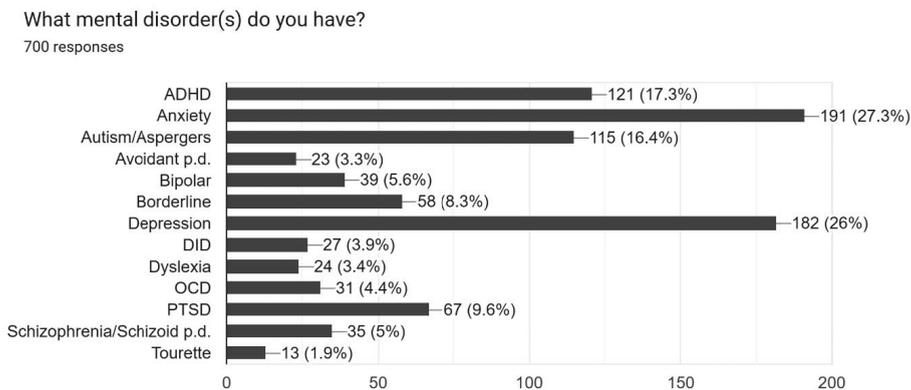


Fig. 7

700 responses

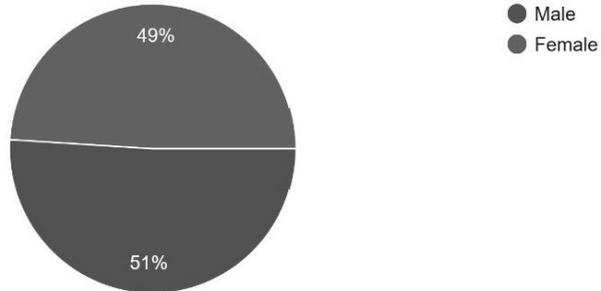


Fig. 8

Which animes help you with mental health?

700 responses

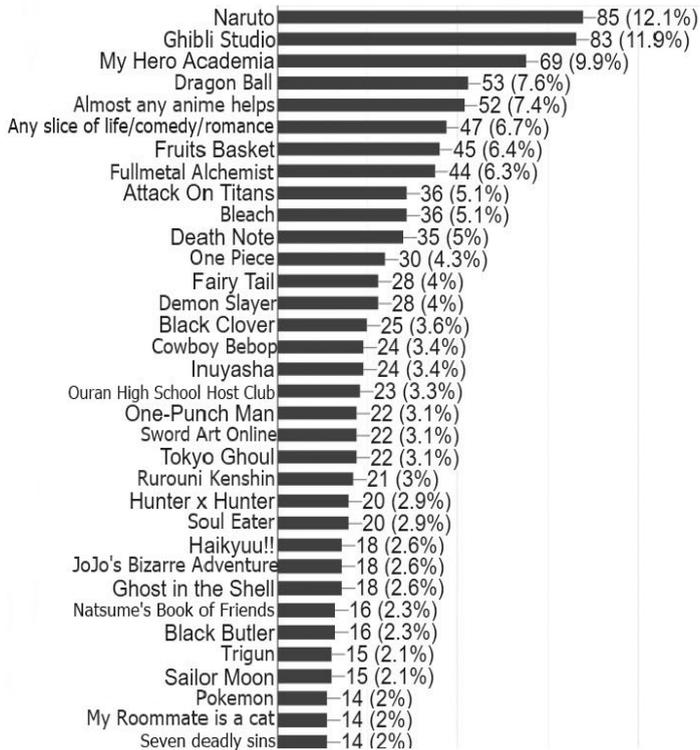


Fig. 9

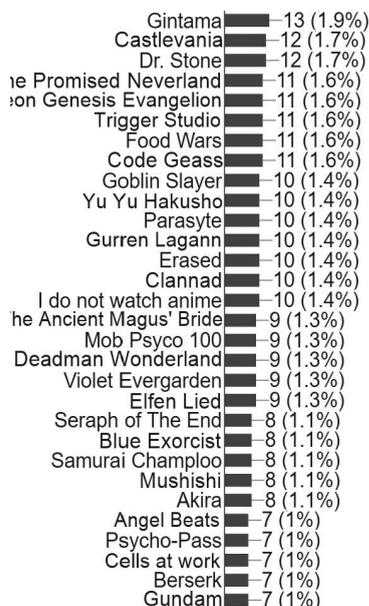


Fig. 10

Among them, 121 had ADHD, 44.63% (54) women and 55.37% (67) men. Their preferences regarding animes that helped them with their mental health, were as shown in the chart below. Here is to mention that due to space constraints, only those with a rating of at least 3% were included in the chart.

## Conclusions

Considering the aforementioned, anime, this Japanese cultural product, can and should be used to teach a variety of subjects to students with special educational needs as well as to neurotypicals. Even if due to the ADHD some people can face difficulties in finding a suitable educational programme for their needs, by watching anime, students with ADHD improve their ability to concentrate, become emotionally balanced, increase their dopamine levels, become more motivated, calm down, increase the intensity of their brain frequencies, and can more easily combat RSD symptoms. They want more video content, more hands-on school and their passions involved in their educational process. Anime is one of them.

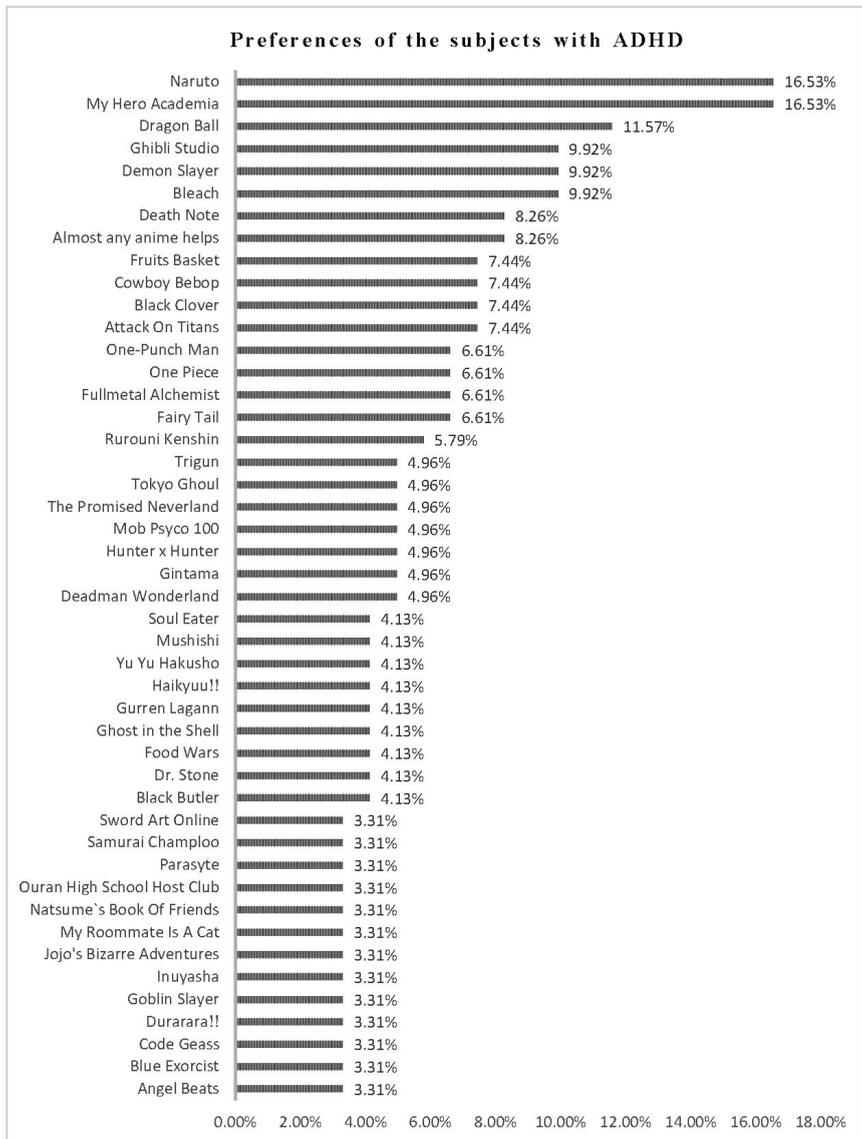


Fig. 11

It should be noted that this paper does not present all the neurological implications of ADHD (although it did not exclude anything considered relevant to the case), it does not address the negative effects of video overdose (because it does not support it), and the method of teaching

through anime it has not been tested on a considerable number of people and would require passionate anime fans as teachers who know how to use it. So, at the moment, it is just a hypothesis not enough tested, but one that has a high chance of effectiveness, if it is applied properly.

As exemplified, anime can be used in teaching most of the subjects in (high)schools and even in some general introductions at universities, since it is a vast cultural phenomenon that involves scientifically proved ideas from all domains. These cultural products should be researched more and some experiments consisting in involving them in teaching at class for neurotypical vs neurodiverse students should be done. Because the so-called freedom to drop schooling is bad both for both the subjects and the society, the right to receive proper education should prevail. And happily, it does. However, in reality, it is not about freedom and right, but rather about what lies between them: the moral responsibility of teachers to help their students integrate into society with well-developed abilities, and the responsibility of students to make themselves able to contribute to society.<sup>33</sup>

Anime in the classroom is a new trend that younger teachers have begun to implement, for both neurotypical and neurodiverse students and has a high likelihood of success for at least several generations.

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33 Ioan-Gheorghe Rotaru, “Valences of Education”, in Proceedings of the 24th International RAIS Conference on Social Sciences and Humanities, August 15-16, 2021, Princeton, NJ, United States of America, pp. 190-196.

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