THE "BRAINROT" PHENOMENON AND CHILDREN'S ATTENTIONAL CONTROL

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Abstrak

Penelitian ini bertujuan menganalisis tingkat paparan konten digital yang bersifat overstimulatif terkait fenomena *brainrot* pada anak sekolah dasar usia 7 sampai 8 tahun serta mengkaji dampaknya terhadap kontrol atensi dalam proses pembelajaran. Penelitian menggunakan pendekatan *mixed methods* dengan desain *sequential explanatory*. Tahap kuantitatif melibatkan 42 orang tua sebagai responden yang dipilih menggunakan teknik *purposive sampling*. Data dikumpulkan melalui kuesioner skala Likert empat poin yang telah memenuhi uji validitas dan reliabilitas (Cronbach's Alpha = 0,968). Tahap kualitatif dilakukan melalui observasi dan wawancara semi terstruktur terhadap guru, orang tua, dan siswa yang dipilih berdasarkan tingkat paparan konten yang tinggi. Data kuantitatif dianalisis menggunakan statistik deskriptif, sedangkan data kualitatif dianalisis dengan model Miles dan Huberman. Hasil penelitian menunjukkan bahwa intensitas paparan konten overstimulatif berada pada kategori tinggi dengan nilai rata-rata 2,93. Anak yang memiliki tingkat paparan tinggi menunjukkan kesulitan mempertahankan perhatian, mudah terdistraksi, memerlukan pengulangan instruksi, kesulitan menyelesaikan tugas, serta kehilangan fokus selama pembelajaran berlangsung. Temuan ini mengindikasikan bahwa paparan konten digital yang overstimulatif berpotensi membentuk pola perhatian instan yang berdampak negatif terhadap perkembangan kontrol atensi anak usia sekolah dasar. Oleh karena itu, diperlukan pendampingan penggunaan media digital oleh keluarga dan sekolah untuk mendukung perkembangan kemampuan atensi anak.

Kata kunci: Brainrot, Konten Overstimulatif, Kontrol Atensi, Sekolah Dasar, Pembelajaran.

Abstract

The purpose of the current study is to analyze the degree of exposure to overstimulating digital content (associated with the "brainrot" phenomenon) in primary school children (aged 7 to 8 years) and to consider its influence on the attentional control in the process of learning. A mixed-methods approach was used, with a sequential explanatory design. In quantitative phase 42 parents were selected by purposive sampling and data were collected by a four-point Likert scale questionnaire with valid and reliable standards (Cronbach's Alpha =0.968). The qualitative phase involved observations and semi-structured interviews with teachers, parents and students selected for their high levels of exposure to the content. Quantitative data were analysed using descriptive statistics and qualitative data were analysed using the Miles and Huberman model. The findings reveal that the degree of exposure to overstimulating content is at a high level with a mean score of 2.93. Children with high levels of exposure had difficulty maintaining concentration, were easily distracted, required instructions to be repeated, struggled to complete tasks and lost concentration during lessons. These findings suggest that exposure to overstimulating digital content can foster patterns of "instant attention" that might have detrimental effects on the development of attentional control in primary school-age children. Therefore, it is important to provide

the children with guidance from families and schools on the use of digital media to support the development of their attentional abilities.

Keywords: *Brainrot, Overstimulation, Attention control, Primary school, Learning.*

A. INTRODUCTION

The growth of digital technology has changed the way in which the public, including children, gets information and entertainment. The rise of short form video platforms such as TikTok, Instagram Reels, and YouTube Shorts allows users to quickly access information through content that is brief, engaging, and easily digestible. In addition to this convenience, the phenomenon of "brainrot" has emerged. This term refers to a decrease in the ability to concentrate and a decline in the quality of information processing as a result of exposure to digital content that is short, fast-paced, repetitive, and overstimulating (Opara et al., 2025; Yilmaz & Aktürk, 2025). Although the term first surfaced in public discourse and digital media, scholarly research has begun to associate it with the impact of consuming digital content on cognitive functions, particularly attention and concentration.

Such conditioning to process information in short snippets and to rapidly switch between stimuli occurs when users are exposed to overstimulating digital content and have an immediate dopamine response (Levey, 2025). These patterns of consumption may undermine one's ability to maintain attention during activities that require focused attention. This phenomenon, a kind of digital overstimulation, can also impair attentional control, reduce learning motivation, and reduce an individual's persistence to finish tasks that require long-term concentration (Yazgan, 2025).

This phenomenon is a serious concern when it occurs in primary school children still at the stage of development of executive functions and attentional control. According to a Common Sense Media report (2025), kids aged eight and under spend an average of 2 hours and 27 minutes per day in front of screens. Research conducted by Saniyyah et al. (2021) in Indonesia found that children use devices for 3-6 hours a day. This duration is far beyond the recommended limit of children's device usage, which is maximum 120 minutes per day (Setiawati et al., 2019). Children are more likely to be constantly exposed to overstimulating digital content because of the intensive use of devices like this.

Research suggests that too much gadget use can affect the psychological functioning of kids. Also, Ulug'bekovich & Bakhodirovna (2025) discovered that the intensive use of gadgets is associated with a decreased attention span and a lowered quality of perception. Dependence on gadgets also disturbed students' concentration in the learning process (Haetami, 2023). In addition, children who are used to quick visual and auditory stimuli may have difficulty following long instructions, focusing on tasks, and concentrating on one activity for long periods of time (Landry, 2022). These effects affect the effectiveness of learning and academic achievement of the students (Qayyum, 2024).

Although the association of device use with learning outcomes has been widely studied, most studies still use screen time as the primary measure. Research on the intensity of exposure to overstimulating digital content and its relation to attentional control during learning is very limited, especially for primary school children aged 7 to 8 in Indonesia. As a result, there is insufficient empirical evidence as to how the features of digital content impact children's attentional abilities. This study adds to the field by focusing its analysis on the intensity of exposure to overstimulating content the phenomenon of 'brainrot' rather than the duration of device usage. This is expected to support a more holistic understanding of the effect of digital content consumption on children's attention skills in learning activities.

Taking the above into account, the purpose of the present study is to determine the extent of exposure to overstimulating content associated with the "brainrot" phenomenon in 7-8 year old primary school children and to examine its impact on attentional control in the process of learning. The findings are expected to provide empirical evidence that can be used as a basis to frame more effective digital guidance and learning strategies by schools and families.

B. METHOD

This study uses a mixed methods sequential explanatory design which begins with the collection and analysis of quantitative data, and then follows up with the collection and analysis of qualitative data to provide a more in-depth explanation for the quantitative findings (Nasution et al., 2024; Nasarudin et al., 2024). The quantitative approach is used to quantify the degree of exposure to overstimulating content in children aged 7 to 8 years, and the qualitative approach is used to analyze the impact of overstimulating content on attentional control in the process of learning.

The study was conducted on elementary school students at an early grade (age 7-8 years) in regencies of Jember and Bondowoso. Quantitative sample was selected using purposive sampling. The criterion was that children actively used digital media in their daily lives. Quantitative data collection was done from 31 respondents who were parents or guardians of the students. The informants in the qualitative phase were purposively selected based on the results of the quantitative analysis and consisted of students, classroom teachers, and parents to obtain more comprehensive information about the children's attentional control during learning.

Quantitative data were collected using a closed-ended questionnaire with a four-point Likert scale for the intensity of exposure to overstimulating content covering indicators such as device usage, types of content watched, duration and frequency of viewing, behaviour during device use and the child's response when access to the device was restricted. Qualitative data were collected via observations during the learning process and semi-structured interviews with teachers and parents. The observations were about the children's ability to pay attention, follow directions and finish learning activities.

The questionnaire instrument was tested for content validity with the expert's judgment then construct validity with the Pearson Product Moment correlation before use. The correlation coefficient of all items of the instrument is said to be valid > r-table (0.355). The reliability test of Cronbach's Alpha obtained a value of 0.968 which shows a very high level of instrument reliability (Yusup, 2018).

The intensity of exposure to overstimulating content was characterized by use of descriptive statistics (mean). Meanwhile, qualitative data were analyzed using the Miles and Huberman model which consists of data reduction, data display and conclusion drawing (Thalib, 2022). The triangulation of sources, namely teachers, parents, and students, and the triangulation of methods, namely the results of observations and interviews (Husnullail et al., 2024), ensured the validity of the qualitative data.

C. RESULTS AND DISCUSSION

1. Intensity of Exposure to Hyperstimulating Content in Children

In order to get valid data, the researcher distributed a questionnaire to the parents of children aged 7-8 years old (grade 1-2 of primary school). The researcher asked the first grade teachers to assist with the distribution of the questionnaire online. 42 participants responded which was the minimum required for sample size.

The questionnaire was designed on a 1–4 scale, therefore the category intervals were calculated as:

$$\frac{4-1}{4} = 0{,}75$$

The categories for the 0.75 interval on the 1–4 scale are:

Table: Interval Category

Interval	Category
1,00 – 1,75	Very Low
1,76 – 2,50	Low
2,51 – 3,25	High
3,26 – 4,00	Very High

Then the mean value of the variable "brainrot" denoting the intensity of children's exposure to overstimulating content was calculated. The results of the calculation yield an average value of:

$$\bar{X}_2 = 2{,}93$$

2.93 is within the interval: 2.51 – 3.25. So it can be classified as High.

The data analysis of 42 respondents shows that the level of exposure to overstimulating content for children aged 7-8 years in the high category with an average score of 2.93. This suggests that children in the early primary school stage are often exposed to digital content with fast visual and audio stimulation such as short videos, reels and other similar content in their daily lives. This high level of intensity indicates that children have become a leading activity of digital media.

2. **The effect of exposure to overstimulating content on children's attentional control in the learning process.**

In this subsection, the researcher collects data on the impact of overstimulating content exposure on children's attentional control in the learning process. Therefore, the researcher selects the research subject by using purposive sampling, that is determining the informant with the criteria of excessive content exposure.

The scoring calculation to identify the respondents with the highest intensity of exposure was as follows:

X Score =X.1+X.2+X.3+X.4+X.5+X.6+X.7+X.8+X.9+X.10

Based on the calculation formula above, the minimum score obtained is 10 and the maximum is 40. The following are the calculated score results for each respondent:

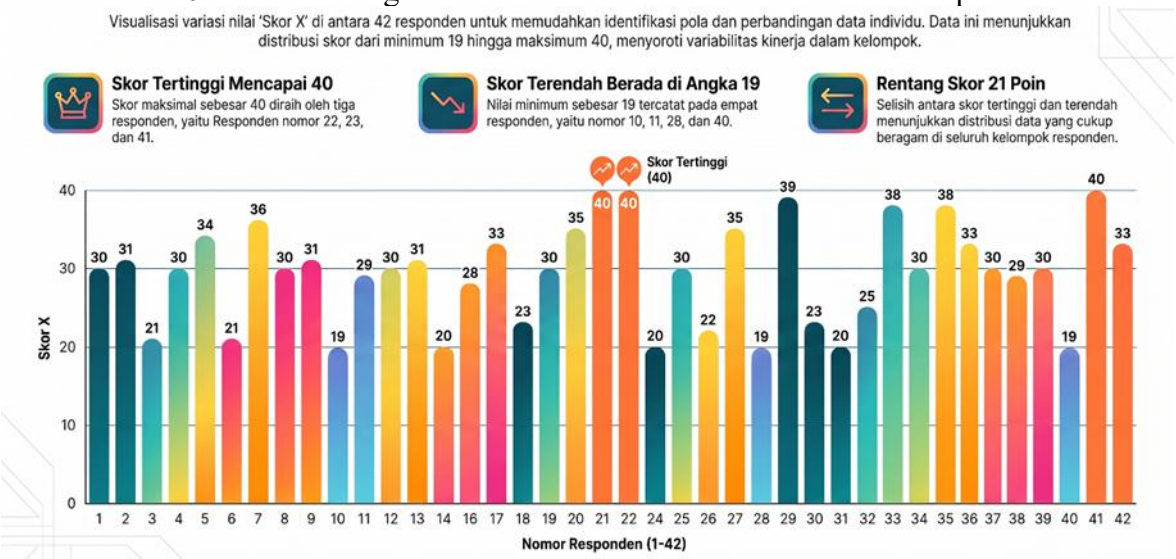

Figure 1. Exposure Intensity Score for Each Respondent

Respondents 22, 23 and 41 were selected as informants based on the individual scores of the above-mentioned respondents, and met the criterion of high exposure to

overstimulating content. Data about the children's attentional control during classroom learning were collected by the researcher through online semi-structured interviews from the class teachers of these respondents. Additionally, the researcher employed observational procedures to corroborate the data obtained from the interviews.

Regarding the children's ability to focus during lessons, the researcher gathered information from the class teachers indicating that this ability remains low. The teachers further noted that the children often appeared to lack focus during learning activities; their attention was easily diverted, preventing them from fully grasping the teacher's explanations.

This is supported by observations that the child is not attentive to the teacher when the material is being explained. In the process of learning, the child seems to pay more attention to other things than to the explanations of the teacher. The results from the interview and observation consistently show the child has difficulty maintaining attention during learning activities.

The researcher also asked the child if he or she is easily distracted in the lessons. The interview results indicate that the child is easily distracted when learning. The teacher noticed that the child's attention often shifted from the learning task to other activities that were not connected to the material being studied.

This is supported by observations which suggest the child is often involved in other activities during lessons. The child seems to have some difficulty maintaining full involvement in the learning process and at times exhibits behaviors that are disruptive to the tasks at hand. These results are consistent with interview findings which suggest that the child struggles with staying focused during instruction.

Regarding the ability to follow instructional directions, interview data indicate that the child needs specific support to follow directions. The teacher says the child often needs to be told many times before he understands and performs assigned tasks.

The above data are supported by the observational data which show that during learning activities the child seemed unable to follow the instructions of the teacher well. The teacher's instructions were not always immediately followed, so that they had to be repeated or further help given. The data indicates that the child's inability to focus impacts the child's comprehension and completion of the instructional tasks.

And the teacher informs about the child's ability to perform the tasks. The teacher said the child has trouble finishing his assignments and often gets distracted and goes to other activities. Often the child's attention is diverted from a task so that he/she is not able to complete the work assigned successfully.

These findings are supported by observations where the child is unable to maintain focus when working on individual tasks and cannot complete them. This indicates the child's ability to conduct learning tasks is affected by deficits in attentional control.

The child's response to long lessons was also a measure of attention that the researcher asked the teacher about. The teacher said that if the lessons were too long, the child would lose concentration. The teacher said the child would often play with a pencil, bother the person sitting next to him or do other things that had nothing to do with the lesson. The teacher obtained this information by direct observation in the classroom. In fact, the teacher often had to intervene, encouraging the child to wait long enough to receive the full content of the lesson.

And the teacher said the most common and obvious problem they see in the child is a state where "their body is in the classroom, but their mind is somewhere else." The teacher says the child is physically present in the classroom but is not always paying attention to the lesson.

The observations confirm this assessment. The child is able to re-focus with guidance or a reminder, but continues to have difficulty maintaining attention during learning

activities. This is evident in the child's poor level of participation, both in attending to the teacher's explanations and in completing assignments. Therefore, the interview and observation data show that the core problem of the child is the ability to maintain internal focus, not a result of the external environment.

The research result shows that the level of exposure of overstimulating content of children aged 7-8 years is in the high category with an overall mean score of 2.81. These findings indicate that the use of devices and the consumption of fast paced, short and repetitive digital content have become part of the daily activities of elementary school children. The high intensity score for device usage suggests that children are often engaged with a variety of digital platforms that offer short form videos, including TikTok, Instagram Reels, and YouTube Shorts.

These findings support the notion of "brainrot" as conceptualized by Serenko (2025), which refers to the cognitive, emotional, and behavioral effects of overusing and repeatedly exposing oneself to low quality digital content. The types of content consumed by the children in this study match the characteristics of brainrot content: it is short, fast-moving, repetitive, and designed to keep the user's attention constantly. These conditions suggest the importance of digital overstimulation especially in the case of primary school children, who are still in the early stages of developing their self-regulation and ability to control their digital media use.

The findings of this study also support the theory of digital overstimulation, which claims that people can suffer from sensory overload from rapid exposure to visual, audio and informational stimuli in a short time period. Popa (2023) defines digital overstimulation as a situation in which a person is exposed to stimuli that exceed the normal processing capacity of the cognitive system. High levels of exposure to digital content in the setting of this study imply that children are perennially exposed to rapidly changing visual and audio stimuli, which may foster a pattern of instant information consumption.

This is further explored through Cognitive Load Theory, as described by Sweller (2011) which states that human working memory can only process a limited amount of information at any one time. Overexposure to excessive digital stimuli leads to an increase in "extraneous cognitive load" or external cognitive burden. This type of cognitive load does not directly add to the learning process, but instead, it consumes the cognitive resources that could have been used to process and understand information deeply. The children learn to process information quickly and superficially, instead of engaging in the processing that requires sustained concentration.

Therefore, the high level of exposure to overstimulating content in this study shows that the current digital environment has created new habits in the ways children consume information. Kids aren't just consumers of digital media, but they're also getting used to attention patterns dependent on fast, immediate stimuli. This condition underlies the development of various problems related to attention in the learning process.

Results from interviews and observations suggest that children with high exposure to overstimulating material experience a range of problems with attentional control during learning. Research has shown that these children have difficulty paying attention when the teacher is presenting material, get distracted easily by other activities, need to be told several times to do tasks, have difficulty finishing tasks and tend to lose focus during long learning periods.

These results are in line with the attentional control theory, which suggests that attention is the ability to direct, maintain, and regulate attention to specific stimuli. Sugarni (2023) indicates that an efficient attentional control allows children to participate in learning activities continuously. Conversely, an inefficient attentional control makes children easily

distracted and unable to focus. The conditions observed in this study suggest that some children have problem performing this function.

Children's difficulties in remaining on task lend credence to the idea that attentional control is closely tied to the maturation of the brain's executive functions, as proposed by Susanti et al. (2023). At 7–8 years of age the executive functions of the child are not yet fully developed, that is, the ability to control attention is not yet fully developed. The brain adapts to stimuli that change quickly more than it does to tasks that require sustained attention . With constant exposure to overstimulating digital content, this may interfere with the development of focus control skills .

The results of this study also lend support to the theory of digital overstimulation that posits exposure to fast-paced visual and audio stimuli can make the brain a conditioned one to always expect new stimulation (Utama, 2025). Therefore, kids have less interest in learning activities that aren't as fast paced as digital content. It is expressed in the form of playing with writing instruments, disturbing the classmates, talking to oneself, or diverting attention to other activities during long lessons.

The most interesting finding of this study is the existence of a condition, described by the teachers as "physically present in the classroom, but mentally elsewhere". This finding suggests that the primary problem is not the presence of the child during instruction, but his inability to remain mentally engaged in learning activities. Such a condition suggests that the deficit in attention control experienced by the child is internal, and related to the ability to regulate attention.

Overall, the study's findings indicate that high exposure to overstimulating content is not only linked to higher frequency of distraction during learning but also potentially influences elementary school children's patterns of instant attention. Children prefer activities that provide quick stimulation and immediate feedback, but they are less able to focus on learning activities that require more intensive thought and longer periods of concentration.

D. CONCLUSION

The analysis of both qualitative and quantitative data resulted in two major findings for this study. First, children 7-8 years old are exposed to high levels of overstimulating content. This means that short video content has been integrated into the daily lives of elementary school students, which could influence their habits of consuming fast, short, and repetitive information. Second, too much exposure to highly stimulating content is linked to poor attention control during learning. This is evidenced by the difficulty of the children to concentrate, being easily distracted, the need to repeat instructions, the inability to pay attention for long periods of time and difficulty in completing tasks.

Besides these two major findings, this study also provided a conceptual insight: the exposure to overstimulating content may contribute to the development of a "instant attention pattern" in elementary school children. This pattern is characterized by an easy ability to focus on activities that provide quick, varied stimulation and immediate feedback, and a difficulty learning activities that progress more slowly and require sustained attention. This conceptual result broadens the understanding of the phenomenon of "brainrot". The result is brainrot. This has been linked to increased levels of device usage as well as changes to attentional processes in children from exposure to overstimulating digital content.

REFERENCES

Haetami, Z. A. (2023). Gadget Usage Intensity on Students' Concentration in English Language Learning. *Proceeding of Annual International Conference on Islamic Education and Language (AICIEL)*, 239–257.

Husnullail, M., Risnita, Jailani, M. S., & Asbui. (2024). Teknik Pemeriksaan Keabsahan Data dalam Riset Ilmiah. *Jurnal Genta Mulia*, *15*(2), 70–78.

Landry, G. (2022). *The Effects of Excessive Screen Time on Children and Young Adolescents*. *1*. Retrieved from: https://digitalcommons.kennesaw.edu/uswhttps://digitalcommons.kennesaw.edu/usw/1

Levey, K. (2025). The Role of Platform Design in Excessive Short Form Video Use and the Resulting Impacts on Cognitive Processes. *Senior Theses*. https://scholarcommons.sc.edu/senior_theses/738

Nasarudin, N., Rahayu, M., Asyari, D. P., Sofyan, A., Fadli, M., Hari, K. K., ... & Sarie, F. (2024). *Metode penelitian kombinasi (mixed method)*. Gita Lentera.

Nasution, F. H., Risnita, Jailani, M. S., & Junaidi, R. (2024). Kombinasi (Mixed-Methods) dalam Praktis Penelitian Ilmiah. *Jurnal Genta Mulia*, *15*(2), 251–256.

Opara, E., Mfon-Ette Adalikwu, T., & Aduke Tolorunleke, C. (2025). *The Impact of Tiktok's Fast-Paced Content on Attention Span of Students*. https://doi.org/10.20944/preprints202501.0269.v1

Popa, V. M. (2023). Early Childhood Development: The Influence of Digital Technology on Psychological Processes and Mechanisms. *Journal of Digital Pedagogy*, *2*(1), 25–37. https://doi.org/10.61071/JDP.2377

Qayyum, A. et al. (2024). The Effect of Excessive Smartphone Use on Child Cognitive Development and Academic Achievement: A Mixed Method Analysis. *Annals of Human and Social Sciences*, *5*(III). https://doi.org/10.35484/AHSS.2024(5-III)16

Saniyyah, L., Setiawan, D., & Ismaya, E. A. (2021). Dampak Penggunaan Gadget terhadap Perilaku Sosial Anak di Desa Jekulo Kudus. *EDUKATIF : JURNAL ILMU PENDIDIKAN*, *3*(4), 2132–2140. https://doi.org/10.31004/EDUKATIF.V3I4.1161

Serenko, A. (2025). Brain Rot – The 2024 Oxford English Dictionary Word of the Year: Why Should Technology Leaders Care? *IEEE Engineering Management Review*. https://doi.org/10.1109/EMR.2025.3583977

Setiawati, E., Solihatulmillah, E., Cahyono, H., & Dewi, A. (2019). The Effect of Gadget on Children's Social Capability. *Journal of Physics: Conference Series*, *1179*(1), 012113. https://doi.org/10.1088/1742-6596/1179/1/012113

Sugarni, M. (n.d.). *Proses Persepsi : Attention*. Retrieved from: https://www.researchgate.net/profile/M-Aris-Rofiqi/publication/374030171_PSIKOLOGI_KOGNITIF/links/65123fc42c6cfe2cc2100289/PSIKOLOGI-KOGNITIF.pdf#page=34

Susanti, D., Hasmira, H., & Sukarnih Putri, M. (2023). PERAN FUNGSI EKSEKUTIF OTAK PADA PERKEMBANGAN ANAK. *Jurnal Pendidikan Indonesia*, *4*(1), 22. https://doi.org/10.59141/japendi.v4i01.1524

Sweller, J. (2011). Cognitive Load Theory. *Psychology of Learning and Motivation - Advances in Research and Theory*, *55*, 37–76. https://doi.org/10.1016/B978-0-12-387691-1.00002-8

Thalib, M. A. (2022). Pelatihan Analisis Data Model Miles dan Huberman untuk Riset Akuntansi Budaya. *Madani: Jurnal Pengabdian Ilmiah*, *5*(1), 23–33. https://doi.org/10.30603/md.v5i1.2581

Ulug'bekovich, B. M., & Bakhodirovna, D. K. (2025). The Impact of Smartphone and Gadget Use on Learning and Attention Concentration in Adolescents. *Spanish Journal of Innovation and Integrity*, *43*, 120–128.

Utama, E. M. (2025). Pengaruh Aktivitas Scroll TikTok terhadap Sistem Reward Otak Anak Usia Sekolah Dasar: Studi Kasus di SDN 2 Berangah. *Journal of Science and Technology: Alpha*, *1*(4), 99–103. https://doi.org/10.70716/alpha.v1i4.304

Yazgan, A. M. (2025). The Problem of the Century: Brain Rot. *OPUS Journal of Society Research*, *22*(2), 211–221. https://doi.org/10.26466/OPUSJSR.1651477

Yilmaz, E., & Aktürk, A. (2025). Brain Rot: A Scale Development Study. *Research on Education and Psychology*, *9*(1), 5–28. https://doi.org/10.54535/REP.1666895

Yusup, F. (2018). Uji validitas dan reliabilitas instrumen penelitian kuantitatif. *Tarbiyah: Jurnal Ilmiah Kependidikan*, *7*(1).