



Exploring Student Attention in Junior High School Classrooms: A Case Study at SMPN 19 Surabaya

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Abstract

Attention of students is an important aspect of effective learning since it directly determines comprehension, memory and classroom participation. But focus is also an issue as it is easy to lose track with distractions, mental exhaustion and the repetitive ways of teaching. The purpose of this study was to determine the causes of inattention among 7th grade students of SMP Negeri 19 Surabaya in the 2024-2025 academic year. A sample of 33 students was used through completion of questionnaires and five students were used in semi-structured interviews to learn more about their lived experiences. The thematic analysis showed that the lapses of attention were not consistent but were always situational, with noisy peers, lack of clarity when explaining the concepts to the students, and fatigue being the most prevalent reasons. Students used to deal with losing focus by doodling, chatting or switching seats or making personal notes. The results show that the attention depends not only on the internal state of students but also on the classroom ecology and the quality of instruction. In theory, this research expands the knowledge on the maintenance of attention by autonomy-supportive environments. In practice, it implies that educators can make their classes more focused by incorporating interactive instruction, gamified learning, and brief brain-break exercises to establish dynamic and psychologically supportive learning environments.

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INTRODUCTION

One of the key factors that define the effectiveness of learning is student attention because it determines the understanding, retention, and participation in meaningful classroom activities. When students are focused, they are able to relate new information to the previous knowledge and use it more effectively. Nevertheless, lack of concentration can result in incomplete cognition or distraction. According to recent research, attention is not a trait but

a dynamic process that is influenced by personal and environmental factors (Steinmayr et al., 2019). Ecological and physical factors like noise, light and ventilation are very important in classrooms.

Studies indicate that noises have negative effects on concentration and cognitive overload (Choi et al., 2014). Equally, Barrett et al. (2013) discovered that learning progress in students is explained by classroom conditions such as lighting and temperature by 16 percent. The spatial factors also have an impact,

Sorensen & Hallinan (2020) have shown that the closeness to teachers is positively associated with attentional engagement, whereas Murray et al. (2019) have also found that overcrowded classrooms lead to more stress and less individual attention. These results indicate that environmental conditions are prerequisite- in case the classrooms are either physically or acoustically inadequate, even the most effective teaching methods will not be able to maintain the concentration of the students.

In addition to the physical factors, psychological and cognitive variables that influence attention are motivation, emotion, and cognitive load. Sustained attention has always been associated with intrinsic motivation (Schunk & DiBenedetto, 2020). According to Sweller (2020), the Cognitive Load Theory states that students tend to lose attention when learning something that surpasses the capacity of the working memory. The issue is exacerbated during adolescence, a period of development that is defined by multitasking and distractibility.

Attention is also affected by emotional states. Pekrun & Perry (2014) discovered that positive emotions like enjoyment and pride increase focus, whereas boredom and anxiety decrease it. According to Pascoe et al. (2020), academic stress causes mental exhaustion and lack of focus. Moreover, poor sleep in adolescents is associated with lack of attention and frustration (Shochat et al., 2014). These researches support the fact that attention is not a sole cognitive process but a complex psychological process that depends on motivation, emotion, and well-being in general.

Teachers are essential in helping students stay focused and engaged. When teachers explain things clearly, show enthusiasm, and provide support, students are more likely to pay attention (Keller et al., 2016). Building positive

relationships between teachers and students creates a sense of trust and makes students feel safe (Wentzel et al., 2014). Teaching with empathy also helps students have a better attitude toward learning, especially in cultures where group values are important (Rogon & Manguilimotan, 2025).

Teaching strategies have a major impact on student attention. Traditional lectures can often cause students to lose interest, while interactive and problem-based learning approaches help improve concentration and comprehension (Freeman et al., 2014; Prince, 2004). Using technology, such as flipped classrooms (Hew & Lo, 2018; O'Flaherty & Phillips, 2015), gamification (Dicheva et al., 2015), and interactive multimedia (Pradana et al., 2025), has been found to maintain student engagement and match their learning styles. Overall, these findings suggest that attention is not something students manage on their own, but rather a result of how teachers plan and deliver their lessons.

A significant portion of global research has examined factors that affect student attention, but most of this work comes from Western countries. These educational systems are different from those in Indonesia in terms of class size, access to resources, and cultural practices. As a result, there is still limited understanding of how Indonesian teenagers experience and handle attention in actual classroom environments. Previous studies have mainly concentrated on teaching methods, but they have not often looked into how students themselves perceive distractions and deal with them.

This gap highlights the importance of conducting research that gives more attention to students' perspectives in order to better understand how attention works in Indonesian classrooms. As a result, this study seeks to identify the specific situations that lead to student

inattention, explain the ways students deal with distractions, and examine the strategies they suggest for enhancing concentration. By using both survey and interview data, the study offers both theoretical contributions—building on Self-Determination Theory and Cognitive Load Theory—and practical advice for teachers to develop more engaging and supportive learning environments.

RESEARCH METHODS

This study used a qualitative exploratory approach based on a constructivist perspective. An exploratory design was chosen because there is limited research on student inattention in Indonesian junior high schools. Hollstein (2014) highlights that qualitative methods are especially useful for uncovering the meanings that participants give to social situations.

The study was conducted in Class VII-K at SMPN 19 Surabaya during the 2024–2025 academic year. Data was collected in May 2025, and all 33 students in the class participated in the study using a total sampling method.

Two different methods were used to gather data: questionnaires and semi-structured interviews. A questionnaire with 12 questions was given to all 33 students through Google Forms, which was shared via the class WhatsApp group. The questionnaire included questions on a Likert scale, multiple-choice questions, and open-ended questions, covering topics like external distractions, internal challenges, and preferred classroom strategies. Before giving the questionnaire to the students, it was checked by two education experts to make sure the content was valid and clear. Additionally, a pilot test was done with five students who were not part of the main sample to check the reliability and consistency of the

questions, leading to some small changes in the wording.

To support the survey findings, semi-structured interviews were carried out with five students in order to explore their personal experiences related to inattention in more depth. The interview questions were open-ended and aimed at encouraging participants to share their personal difficulties, strategies they used to stay focused, and their recommendations for improving concentration. In order to ensure the reliability of the qualitative results, the interview records were reviewed through member checking, allowing participants to confirm that their responses were accurately represented. The consistency of the themes was further reinforced through discussions with other researchers and by comparing the findings from the questionnaire with those from the interviews.

The theme analysis was conducted using a qualitative approach known as thematic analysis, which is highly effective in identifying, explaining, and showcasing recurring patterns within qualitative data. Braun & Clarke (2006) note that thematic analysis is conceptually flexible and can be applied across various research contexts, which makes it a suitable choice for this study. Additionally, Dawadi (2020) highlights the practical application of thematic analysis in educational research, particularly in studies that focus on students' perspectives, such as this one.

The data were analyzed through thematic analysis, following the five stages outlined by Braun & Clarke (2006). These stages involved transcription, becoming familiar with the data, coding, developing themes, and drawing conclusions. Each step was carried out in a structured manner to ensure the analysis was reliable and valid. The process is shown in Figure 1 to improve the clarity and transparency of how the analysis was conducted.



Figure 1. Thematic Analysis Process (Braun & Clarke, 2006)

To ensure thorough analysis, methods such as data triangulation and peer debriefing were used throughout the study. Themes that emerged from the data were checked against different sources, like questionnaires and interviews, to make sure the interpretations were consistent, reliable, and trustworthy.

RESULTS AND DISCUSSION

The analysis combined data from questionnaires involving 33 participants and semi-structured interviews with 5 individuals, offering a detailed view of how students experience inattention, the reasons behind it, and the strategies they use to manage it. The survey results were presented in tables for clear presentation, while the qualitative findings were explained using key themes, supported by direct quotes that reflect the real-life experiences of the students.

Table 1. Frequency of Students Losing Focus in Class

No.	Responses	Number of Students	Percentage (%)
1.	Sometimes	15	45.4
2.	Rarely	10	30.3
3.	Often	6	18.2
4.	Never	2	6.0

Table 1 shows that short periods of inattention were frequently reported. Most students (45.4%) said they sometimes had trouble staying focused, which suggests that attention is not a constant trait but rather a changing state, as noted by Steinmayr et al. (2019). Students described their attention as "*sometimes just fading away when it gets too noisy or too hot*" (Interview 2). This shows that inattention often happens in specific situations, influenced by both environmental and psychological factors.

Cognitive psychology backs this up, Unsworth & Robison (2017) pointed out that attention can change based on how difficult a task is and how tired someone feels mentally. Therefore, brief moments of losing focus should be seen as natural pauses in thinking rather than failures on the part of the individual. Teachers can help by planning lessons that include changing levels of activity and short breaks for reflection, which fits with the ICAP framework that highlights the importance of active learning over passive listening (Chi & Wylie, 2014).

Table 2. Main Causes of Losing Focus

No.	Responses	Number of Students	Percentage (%)
1.	Noisy classmates	11	33.3
2.	Fatigue/sleepiness	7	21.2
3.	Difficult material	5	15.2
4.	Monotonous teaching	4	12.1
5.	Unclear teacher explanation	3	9.0
6.	Boring classroom atmosphere	3	9.0

Based on Table 2, peer noise was the most commonly mentioned reason for inattention, accounting for (33.3%). This aligns with the findings of Kuznekoff et al. (2015), who noted that conversations among peers and digital distractions hinder understanding. One student shared, *"When my classmates are noisy, I can't catch what the teacher says, and I just give up listening"* (Interview 4). These observations imply that social distractions are not simply behavioral issues but cognitive disruptions that interfere with working memory.

Fatigue and sleepiness were also significant, making up (21.2%) of the causes. Shochat et al. (2014) connected insufficient sleep in adolescents with inattention and irritability. In Indonesia, early school start times and heavy extracurricular responsibilities may

worsen this issue, pointing to broader systemic factors rather than individual problems. As one student explained, *"I sleep late doing homework, so in the morning I just stare at the board without hearing anything"* (Interview 3). These results emphasize the importance of school policies that support student well-being and manage workloads effectively.

Teaching methods, such as unengaging lessons (12.1%) and unclear explanations (9.0%), also played a role in students losing focus. (yan & Deci (2020) suggest that teaching that supports student autonomy meets their needs for competence and connection, helping to maintain motivation and attention. Therefore, a teacher's clarity and enthusiasm are crucial in influencing how attentive students are.

Table 3. Reactions When Students Lose Focus

No.	Responses	Number of Students	Percentage (%)
1.	Chatting with friends	13	39.3
2.	Daydreaming	8	24.2
3.	Doodling	7	21.2
4.	Looking around/other activities	5	15.1

According to Table 3, students frequently engaged in coping behaviors when their attention started to fade. The most common actions were chatting, which occurred in (39.3%) of cases, and daydreaming, at (24.2%). One student shared, *"When I get bored, I talk to my seatmate just to stay awake"* (Interview 1). These actions, even though they are not focused on the task at hand, serve a purpose in helping students manage their own regulation. Boekaerts & Cascallar (2006) mentioned that students often use

avoidant strategies when the mental or emotional challenges they face are greater than their ability to handle them. Cortazzi & Jin (2013) also noted that simple activities such as doodling act as brief pauses that can assist in refocusing attention. Instead of seeing these actions as disruptions, teachers should understand them as signs that students are struggling with too much mental effort and adjust their teaching methods accordingly.

Table 4. Comfort in Asking Questions

No.	Responses	Number of Students	Percentage (%)
1.	Yes	14	42.4
2.	No	11	33.3
3.	Sometimes	8	24.2

Table 4 shows only 42.4% of students felt at ease asking questions. This suggests that there is limited psychological safety in the classroom, which is often connected to concerns about being judged by peers or receiving negative responses from teachers. One student shared, *"Sometimes I want to ask, but I'm scared my friends will laugh"* (Interview 5). Research by Birenbaum et al. (2011) shows that students are more

likely to participate when they feel respected by teachers and when the classroom environment is supportive. In cultures that value collectivism, such as Indonesia, maintaining group harmony is often more important than expressing individual opinions (Reeve, 2012). Therefore, fostering emotionally safe spaces is essential for promoting curiosity and keeping students engaged.

Table 5. Average Ratings on Learning Experience

No.	Responses	Average Score
1.	I focus more with interactive methods	3.4
2.	The classroom atmosphere affects my focus	3.2
3.	I get bored when the teacher only lectures	3.1
4.	I am often distracted during class	2.3

Note : All 33 students responded using a 4-point Likert scale (1 = strongly disagree, 4 = strongly agree)

All 33 students completed this section of the questionnaire. The highest average score of (3.4) shows that interactive and participatory learning methods, like group discussions and games, are most effective in keeping students attentive. The classroom environment, with an average score of (3.2), was also seen as a key factor, highlighting how comfort and the behavior of peers can influence students' ability to concentrate. A moderate score of

(3.1) for the statement "I get bored when the teacher only lectures" suggests that students are sensitive to dull teaching methods. The lowest score of (2.3) for frequent distractions indicates that while students may sometimes lose focus, this is not a consistent issue. Overall, these results show that student attention can be greatly improved by using engaging teaching methods and fostering a positive classroom atmosphere.

Table 6. Thematic Coding Process

No.	Excerpt from Interview	Initial Code	Sub-theme	Main Theme
1.	<i>"My classmates are very noisy, so I can't hear what the teacher is saying."</i>	Peer noise	Social distractions	Peer Distraction
2.	<i>"When the classroom is hot and stuffy, I quickly get tired and sleepy."</i>	Physical discomfort	Uncomfortable environment	Environmental Factors
3.	<i>"Sometimes the teacher explains too fast, and I can't follow."</i>	Unclear instruction	Teacher clarity	Teaching Method and Influence
4.	<i>"I can focus better when learning through games or videos."</i>	Interactive learning	Use of technology	Student Suggestions
5.	<i>"If I sleep late finishing assignments, I can't concentrate."</i>	Fatigue	Overthinking and tiredness	Internal Factors
6.	<i>"When I get bored, I doodle in my notebook."</i>	Doodling	Coping behavior	Coping Reactions

Thematic analysis revealed six key themes that show how environmental, teaching-related, and psychological factors interact to affect students' attention in Indonesian junior high school classrooms.

A major theme identified was peer distraction, with social noise acting as the primary obstacle to students' focus. Many students noted that *"The class is too noisy, so I can't hear the teacher clearly,"* highlighting how interactions among classmates and the way desks are arranged in Indonesian classrooms contribute to increased background noise. This aligns with the findings of (Kuznekoff et al., 2015), who highlighted that peer interruptions, such as talking or engaging in activities unrelated to the lesson, hinder understanding and reduce the capacity of working memory. However, the level of peer distraction observed in this study was more intense than in Western classrooms, possibly because of larger class sizes and a stronger cultural value placed on social interaction and group unity.

The second theme, teacher influence, showed that a teacher's enthusiasm and clear explanations greatly helped students stay focused. One participant said, *"When the teacher smiles and explains slowly, it's easier to stay awake,"* highlighting how a teacher's style can emotionally connect with students. This idea matches Ryan & Deci (2020), who suggest that teaching that supports student autonomy meets their need for feeling connected and capable, which helps them stay involved. Keller et al. (2016) also noted that a teacher's enthusiasm can boost motivation. These findings show that attention is built through how teachers act and how they relate to students, not just through the students' own effort.

Another key theme focused on internal psychological factors, including fatigue and excessive thinking. Many students shared, *"If I sleep late finishing*

assignments, I can't concentrate in the morning." This aligns with Pascoe et al. (2020), who connected adolescent stress and poor sleep with reduced attention and mental exhaustion. In Indonesia, these issues are made worse by extended school hours and extra activities outside the classroom, indicating that the problem stems from a heavy academic workload and lack of rest, rather than being a personal or occasional challenge.

Students also shared ideas for staying focused, suggesting interactive methods like using videos, having discussions, and holding outdoor classes. These strategies, which are relevant to the local context, align with the ideas of gamification and experiential learning, as noted by Dicheva et al. (2015). These researchers found that enjoyable and real-life learning experiences can boost motivation and help students keep going. However, unlike findings from other countries, Indonesian students highlighted the importance of having different activities and incorporating movement. This could be due to the tropical climate and longer school hours, which might lead to mental tiredness and the need for physical activity.

The next topic focused on coping reactions. When students' attention wandered, they frequently engaged in activities like doodling, talking to friends, or changing their posture. Instead of viewing these actions as disruptive behavior, they can be seen as efforts to regulate themselves and bring their focus back. This perspective matches the view of Boekaerts & Cascallar (2006), who described avoidance strategies as short-term coping methods used during times of mental or emotional strain. Similarly, Cortazzi & Jin (2013) noted that small off-task behaviors, such as doodling, can act as brief pauses or *"micro-breaks,"* allowing learners to regain energy and refocus on their studies.

Finally, the analysis of local contributions showed unique features in the Indonesian setting. When compared to results from Western research, Indonesian students showed a higher awareness of environmental discomfort, like heat and noise, as well as the importance of social harmony in the classroom. The collectivist nature of Indonesian culture makes students more sensitive to the actions of their peers, the behavior of teachers, and the emotional atmosphere in the classroom. Therefore, paying attention is not just about thinking but also involves social and cultural influences shaped by interactions and the surrounding environment.

The results show that students' attention changes over time and is affected by the classroom environment, their emotional state, and how lessons are structured. In Indonesia, where classes are often large, school facilities may be limited, and students are closely connected socially, factors related to the environment and relationships have a stronger impact than just intellectual elements. This study builds on Self-Determination Theory Ryan & Deci (2020) by showing that teaching methods that support student autonomy need to be combined with awareness of the environment and respect for cultural differences in order to maintain focus effectively.

CONCLUSIONS AND SUGGESTIONS

The results showed that students' ability to focus is not something that stays the same all the time. It changes depending on different factors, both from inside and outside. Factors like tiredness, thinking too much, and how motivated a student feels play a role, just as do things like distractions from classmates, how clear the teacher is, and the overall classroom setting. Students generally said that lessons that involved talking, playing games, and using videos or other

multimedia tools were better at keeping them interested than lessons that just involved listening to a teacher talk constantly.

This study shows that attention is not fixed but changes based on a person's mental health, how they interact with others, and the environment of the classroom. Including students' views in how lessons are planned helps teachers support students' independence, create a supportive emotional atmosphere, and encourage them to be more involved. In practice, teachers can help keep students focused by using different teaching approaches, controlling classroom noise levels, and adding brief moments of energy or visual aids to keep learning interesting.

This study had some limitations, including a small group of participants and a focus on only one school, which might affect how well the results can be applied elsewhere. The data was collected during a single academic term, covering a limited period. Future research could broaden the scope by including multiple schools in different areas or at various grade levels to gain more comparative information. It would also be helpful to conduct longer-term or experimental studies to explore how certain strategies, such as interactive lessons or adjustable seating arrangements, influence attention over time. Including input from teachers and observing classrooms could further enhance understanding of how attention changes in different educational settings

REFERENCE

- Barrett, P., Zhang, Y., Moffat, J., & Kobbacy, K. (2013). A holistic, multi-level analysis identifying the impact of classroom design on pupils' learning. *Building and Environment*, 59, 678–689.
<https://doi.org/10.1016/j.buildenv.2015.02.013>
- Birenbaum, M., Kimron, H., & Shilton, H.

- (2011). Nested contexts that shape assessment for learning: School-based professional learning community and classroom culture. *Studies in Educational Evaluation*, 37(1), 35–48.
- Boekaerts, M., & Cascallar, E. (2006). How far have we moved toward the integration of theory and practice in self-regulation? *Educational Psychology Review*, 18(3), 199–210. <https://doi.org/10.1007/s10648-006-9013-4>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Chi, M. T. H., & Wylie, R. (2014). The ICAP framework: Linking cognitive engagement to active learning outcomes. *Educational Psychologist*, 49(4), 219–243. <https://doi.org/10.1080/00461520.2014.965823>
- Choi, H.-H., Van Merriënboer, J. J. G., & Paas, F. (2014). Effects of the physical environment on cognitive load and learning: Towards a new model of cognitive load. *Educational Psychology Review*, 26(2), 225–244. <https://doi.org/10.1007/s10648-014-9262-6>
- Cortazzi, M., & Jin, L. (2013). Introduction: Researching cultures of learning. *Researching Cultures of Learning: International Perspectives on Language Learning and Education*, 1–17. <https://doi.org/10.1057/9781137296344>
- Dawadi, S. (2020). Thematic analysis approach: A step by step guide for ELT research practitioners. *Journal of NELTA*, 25(1–2), 62–71. <https://doi.org/10.3126/nelta.v25i1-2.49731>
- Dicheva, D., Dichev, C., Agre, G., & Angelova, G. (2015). Gamification in education: A systematic mapping study. *Journal of Educational Technology & Society*, 18(3), 75–88.
- Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences*, 111(23), 8410–8415. <https://doi.org/10.1073/pnas.1319030111>
- Hew, K. F., & Lo, C. K. (2018). Flipped classroom improves student learning in health professions education: a meta-analysis. *BMC Medical Education*, 18(1), 38. <https://doi.org/10.1186/s12909-018-1144-z>
- Hollstein, B. (2014). Qualitative approaches. In *The SAGE handbook of social network analysis* (pp. 404–416). SAGE.
- Keller, M. M., Hoy, A. W., Goetz, T., & Frenzel, A. C. (2016). Teacher enthusiasm: Reviewing and redefining a complex construct. *Educational Psychology Review*, 28(4), 743–769. <https://doi.org/10.1007/s10648-015-9354-y>
- Kuznekoff, J. H., Munz, S., & Titsworth, S. (2015). Mobile phones in the classroom: Examining the effects of texting, Twitter, and message content on student learning. *Communication Education*, 64(3), 344–365. <https://doi.org/10.1080/03634523.2015.1038727>
- Murray, C., Zvoch, K., & Henry, D. (2019). Classroom density and student engagement: Exploring the physical context of learning. *Learning Environments Research*, 22(3), 329–345. <https://doi.org/10.1007/s10984->

- 019-09287-y
- O'Flaherty, J., & Phillips, C. (2015). The use of flipped classrooms in higher education: A scoping review. *The Internet and Higher Education*, 25, 85–95.
<https://doi.org/10.1016/j.iheduc.2015.02.002>
- Pascoe, M. C., Hetrick, S. E., & Parker, A. G. (2020). The impact of stress on students in secondary school and higher education. *International Journal of Adolescence and Youth*, 25(1), 104–112.
<https://doi.org/10.1080/02673843.2019.1596823>
- Pekrun, R., & Perry, R. P. (2014). Control-value theory of achievement emotions. In *International handbook of emotions in education* (pp. 120–141). Routledge.
- Pradana, K. C., Noer, S. H., & Sutiarto, S. (2025). Enhancing Critical Thinking in Mathematics through Android-Based Multimedia and PjBL-STEM. *Online Learning in Educational Research*, 5(1), 81–93.
<https://doi.org/10.58524/oler.v5i1.534>
- Prince, M. (2004). Does active learning work? A review of the research. *Journal of Engineering Education*, 93(3), 223–231.
<https://doi.org/10.1002/j.2168-9830.2004.tb00809.x>
- Reeve, J. (2012). A self-determination theory perspective on student engagement. In *Handbook of research on student engagement* (pp. 149–172). Springer.
- Rogon, M. A. J., & Manguilimotan, Y. B. (2025). Teacher-student relationship and academic emotions as predictors of learning attitude of students in science. *EPRA International Journal of Multidisciplinary Research*, 11(1), 45–54.
<https://doi.org/10.36713/epra19952>
- 52
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 61, 101860.
<https://doi.org/10.1016/j.cedpsych.2020.101860>
- Schunk, D. H., & DiBenedetto, M. K. (2020). Motivation and social-emotional learning: Theory, research, and practice. *Contemporary Educational Psychology*, 60, 101830.
<https://doi.org/10.1016/j.cedpsych.2019.101830>
- Shochat, T., Cohen-Zion, M., & Tzischinsky, O. (2014). Functional consequences of inadequate sleep in adolescents: a systematic review. *Sleep Medicine Reviews*, 18(1), 75–87.
<https://doi.org/10.1016/j.smrv.2013.03.005>
- Sorensen, L., & Hallinan, M. (2020). Seating arrangements and student attention: Proximity and participation in middle school classrooms. *Educational Studies*, 46(4), 512–528.
<https://doi.org/10.1080/03055698.2019.1706082>
- Steinmayr, R., Weidinger, A. F., Schwinger, M., & Spinath, B. (2019). The importance of students' motivation for their academic achievement—replicating and extending previous findings. *Frontiers in Psychology*, 10, 464340.
<https://doi.org/10.3389/fpsyg.2019.01730>
- Sweller, J. (2020). Cognitive load theory and educational technology. *Educational Technology Research and Development*, 68(1), 1–16.
<https://doi.org/10.1007/s11423-019-09701-3>
- Unsworth, N., & Robison, M. K. (2017). A locus coeruleus-norepinephrine account of individual differences in working memory capacity and

attention control. *Psychonomic Bulletin & Review*, 24(4), 1282–1311.
<https://doi.org/10.3758/s13423-016-1220-5>

Wentzel, K., Russell, S., & Baker, S. (2014). Peer relationships and positive adjustment at school. In *Handbook of positive psychology in schools* (pp. 260–277). Routledge.