

Key factors in quality teaching and learning processes

In a nutshell

- School and classroom structural factors have some significance to a child's learning and motivation, but they explain only a small fraction of the variation in learning outcomes.
- Quality of the classroom interaction processes supporting learning is rooted in how teachers apply the curriculum in class, and what kind of goals and study they stress.
- The *process quality* of the interaction between teacher and children plays a crucial role in explaining learning outcomes.
- The teaching through interaction (TTI) framework conceptualises the quality of teacher-child interactions by dividing them into three broad domains: emotional support, classroom organisation, and instructional support.
- The most important factors supporting learning are: Time used in learning, Teacher-child relationship, enhancing self-regulation skills, teaching of learning strategies, clarity and consistency of instructions, demonstrating teaching and modelling behaviour, repetition and rehearsing of the learned skills and supporting learning difficulties.

The quality of the learning environment

It is not easy to identify effective teaching, although better teaching practices are needed to tackle the possible learning crisis in low- and middle-income countries. In recent research, attention has been directed to learning environments from both structural and process viewpoints. The *structural quality* factors defining the quality of learning environments can include recourse, teacher's educational level and work experience, class size, number of assistants in the class, number of children with learning difficulties, number of learning materials or technical devices, suitability, stimulation, safety of the physical surroundings, and curriculum aims. Although the factors which concern the school and classrooms have some significance to a child's learning and motivation, they explain only a small fraction of the variation in learning outcomes. However, recent research stresses the *process quality* of the interaction between teacher and children, which plays a crucial role in explaining this variation¹Hamre, B. K., Pianta, R. C., Downer, J. T., DeCoster, J., Mashburn, A. J., Jones, S., . . . Hamagami, A. (2013). Teaching Through Interactions: Testing a developmental framework of teacher effectiveness in over 4,000 classrooms. The Elementary School Journal, 113, 461–487., possibly because the quality of the interaction processes supporting learning is rooted in how teachers apply the curriculum in class, and what kind of goals and study they stress.

Teaching through interaction

The teaching through interaction (TTI) framework²Hamre, B. K., Pianta, R. C., Downer, J. T., DeCoster, J., Mashburn, A. J., Jones, S., . . . Hamagami, A. (2013). Teaching Through Interactions: Testing a developmental framework of teacher effectiveness in over 4,000 classrooms. The Elementary School Journal, 113, 461–487. conceptualizes the quality of teacher–child interactions by dividing them into three broad

domains: emotional support, classroom organization, and instructional support. These key domains direct teachers' teaching practices and children's learning processes. Based on the TTI framework, effective teaching requires tailored strategies and well-targeted support from the teacher to strengthen children's learning. The Classroom Observation System (CLASS)³Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008). Classroom Assessment Scoring System (CLASS) Manual, Pre-K. Baltimore, MD: Brookes Pub. instrument is based on the TTI framework, with these three domains, and has been shown to be a reliable instrument to observe the effectiveness of teaching in several educational contexts around the world.

Emotional support stresses the qualities of the interactions that promote a child's social and emotional functions in the classroom. In the CLASS, it is built on four dimensions: positive and negative climate in the classroom; teacher sensitivity; and regard for the child's perspective. Its theoretical foundation is based on attachment theory⁴Bowlby, J. (1974). Attachment – volume one of Attachment and Loss (3. ed.). London: Hogarth press. which posits that a child needs a safe, predictable, and consistent learning environment. Such environments are marked by an absence of negativity, such as punitive control or disrespect in communication, and are, instead, seen to support a child's self-reliance and ability to take risks. Moreover, from the perspective of self-determination theory⁵Deci, E. L., & Ryan, R. M. (1985). Intrinsic motivation and self-determination in human behaviour. New York: Plenum., this domain highlights that children are driven by an innate psychological need to experience competence, autonomy, and relatedness. These needs further support a child's motivation and engagement in learning⁶Hamre, B. K., Pianta, R. C., Downer, J. T., DeCoster, J., Mashburn, A. J., Jones, S., . . . Hamagami, A. (2013). Teaching Through Interactions: Testing a developmental framework of teacher effectiveness in over 4,000 classrooms.

The Elementary School Journal, 113, 461–487.. Emotional support, made up of a positive and supportive classroom atmosphere and positive teacher–child and peer relationships, has been associated with a child’s willingness to participate in classroom activities⁷Hamre, B. K., & Pianta, R. C. (2005). Can instructional and emotional support in the first grade classroom make a difference for children at risk of school failure? Child Development, 76, 949–967., academic achievement⁸Hamre, B. K., & Pianta, R. C. (2005). Can instructional and emotional support in the first grade classroom make a difference for children at risk of school failure? Child Development, 76, 949–967., social competence⁹Mashburn, A., Pianta, R., Hamre, B., Downer, J., Barbarin, O., Bryant, D., Burchinal, M. & Early, D. (2008). Measures of classroom quality in prekindergarten and children’s development of academic, language, and social skills. Child Development, 79, 732-749., and motivation¹⁰Pakarinen, E., Kiuru, N., Lerkkanen, M.-K., Poikkeus, A.-M., Siekkinen, M., & Nurmi, J.-E. (2010). Classroom organization and teacher stress predict learning motivation in kindergarten children. European Journal of Psychology of Education, 25 (3), 281-300.. Although emotional support has been shown to be important for all learners, it has been found to be especially important for children who are vulnerable and risk failing at school¹¹Hamre, B. K., & Pianta, R. C. (2005). Can instructional and emotional support in the first grade classroom make a difference for children at risk of school failure? Child Development, 76, 949–967..

Classroom organization includes a wide variety of classroom processes related to proactive behavioural management, productivity, maximizing time for learning, and a variety of engaging instructional learning formats. Theoretically, this domain is related to how children’s self-regulation skills develop, the way environment regulates learning, and

constructivist ideas regarding how children best attach to learning when they can participate in planning goals, monitoring, and regulating their learning process, as well as regulating and controlling, by themselves, their actions, learning, and motivation¹²Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008). Classroom Assessment Scoring System (CLASS) Manual, Pre-K. Baltimore, MD: Brookes Pub.. Learners have better self-regulating skills in well-functioning classrooms; thus, they have better opportunities to learn things. Learners are not passive in learning situations; rather, they are active agents of their learning and strongly attached to learning situations. High-quality classroom organization (e.g., clear rules and routines and inherently interesting activities) is associated with greater interest in learning activities among children¹³Pakarinen, E., Kiuru, N., Lerkkanen, M.-K., Poikkeus, A.-M., Siekkinen, M., & Nurmi, J.-E. (2010). Classroom organization and teacher stress predict learning motivation in kindergarten children. *European Journal of Psychology of Education*, 25 (3), 281-300., on-task behaviour¹⁴Rimm-Kaufman, S.E., Curby, T.W., Grimm, K.J., Nathanson, L. & Brock, L.L. (2009). The contribution of children's self-regulation and classroom quality to children's adaptive behaviors in the kindergarten classroom. *Developmental Psychology*, 45, 958-972..

Instructional support focuses on teacher–child interactions in relation to linguistic and cognitive development. Moreover, it emphasizes the development of metacognitive skills, and awareness and understanding of learners' own thinking processes. For these reasons, the dimensions of instructional support are different across different ages. In pre-primary and primary school, it is defined as learning vocabulary, quality of feedback, and linguistic modelling, while in lower secondary school, understanding content, quality of feedback, analysing, differentiating, and problem solving, as well as dialogue of teaching, are stressed. Instructional practices in

which a child's learning is supported by scaffolding enable them to comprehend content deeply and interconnect new constructs with previously acquired knowledge.

Vocabulary learning concerns a teacher's ability to use instructional discussions and different ways of working to develop learners' knowledge of concepts and thinking skills. High-quality feedback includes scaffolding, interaction, and feedback loops, and it progresses thinking processes. Feedback deepens learners' knowledge and understanding and also encourages persistence, trying, and participating. A teacher asks learners to describe and explain their thinking and challenges them to evaluate solutions or what strategy might work with a given task. A teacher asks questions to support learners' understanding and gives new knowledge to deepen that understanding.

Linguistic modelling includes techniques for learning (such as open questions, repetitions, widenings, and enriching vocabulary) through which a teacher gives linguistic stimulations and supports the development of language. Understanding content refers to the depth of content given during a lesson as well as a teacher's way of helping learners understand the central things, concepts, principles, and working models. With differentiation and problem solving, a teacher progresses learners' higher-level thinking and metacognitions.

In dialogue of teaching, a teacher uses the sharing of goal-oriented views and ideas via structural questioning and discussion to progress learners' understanding of content and their thinking skills. Instructional support of high quality has been found to be related, to a great extent, to positive interactions between child and teacher, as well as more active classroom engagement¹⁵ Downer, J. T., Rimm-Kaufman, S. E., & Pianta, R. C. (2007). How do classroom conditions and children's risk for school problems contribute to children's

behavioral engagement in learning? School Psychology Review, 36, 413-432. and better academic outcomes among children¹⁶Muhonen, H., Pakarinen, E., Poikkeus, A.-M., Lerkkanen, M.-K., & Rasku-Puttonen, H., (2018). Quality of educational dialogue and association with students' academic performance. Learning and Instruction, 55, 67–79..

TEACH tool for teachers' professional development

TEACH is an opensource classroom observation tool developed by The World Bank to holistically measure what happens in the classroom in low- and mid-income countries¹⁷Molina, E., Melo, H., Carolina, E., Pushparatnam, A., & Wilichowski, T.M. (2019). Teach: Observer Manual. Washington, D.C.: World Bank Group.

<http://documents.worldbank.org/curated/en/949541542659103528/Teach-Observer-Manual>. It is intended to be used as an educational evaluation system and for teachers' professional development. TEACH captures the quality of teaching practices, as well as practices that nurture children's cognitive and socioemotional skills. The three domains of TEACH, namely the classroom culture, instruction, and socioemotional skills, are similar to the classroom organization, instructional support, and emotional support domains of the CLASS observation instrument¹⁸Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008). Classroom Assessment Scoring System (CLASS) Manual, Pre-K. Baltimore, MD: Brookes Pub.. However, TEACH differs from CLASS in that it captures both the *time teachers spend on learning* and the extent to which students are on task, and the *quality of teaching practices* (focusing on classroom culture, instruction, and socioemotional skills) that help develop students' outcomes.

First, the teacher creates a ***classroom culture*** that is conducive to learning. The focus is not on the teacher correcting learners' negative behaviours but, rather, the extent to which the teacher creates: (1) a *supportive learning*

environment, by treating all learners respectfully, consistently using positive language, responding to learners' needs, and both challenging gender stereotypes and not exhibiting gender bias in the classroom; and (2) *positive behavioural expectations*, by setting clear behavioural expectations, acknowledging positive learner behaviour, and effectively redirecting misbehaviour¹⁹ Molina, E., Melo, H., Carolina, E., Pushparatnam, A., & Wilichowski, T.M. (2019). Teach: Observer Manual. Washington, D.C.: World Bank Group. <http://documents.worldbank.org/curated/en/949541542659103528/Teach-Observer-Manual>.

Second, the teacher ***instructs*** in a way that deepens learner understanding and encourages critical thinking and analysis. The focus is on the extent to which the teacher: (1) *facilitates the lesson*, by explicitly articulating lesson objectives that are aligned to the learning activity, clearly explaining content, connecting the learning activity to other content knowledge or learners' daily lives, and modelling the learning activity through enacting or thinking aloud; (2) *checks for understanding* by using questions, prompts, or other strategies to determine learners' level of understanding, by monitoring learners during group and independent work, and by adjusting their teaching to the level of learners; (3) *gives feedback*, by providing specific comments or prompts to help clarify learners' misunderstandings or identify their successes; and (4) encourages learners to *think critically*, by asking open-ended questions and providing learners with thinking tasks that require them to actively analyse content²⁰ Molina, E., Melo, H., Carolina, E., Pushparatnam, A., & Wilichowski, T.M. (2019). Teach: Observer Manual. Washington, D.C.: World Bank Group. <http://documents.worldbank.org/curated/en/949541542659103528/Teach-Observer-Manual>.

Third, to fosters learners' ***socioemotional skills*** the teacher: (1) instils *autonomy*, by providing learners with opportunities

to make choices and take on meaningful roles in the classroom; (2) promotes *perseverance*, by acknowledging learners' efforts; by having a positive attitude toward learners' challenges by framing failure and frustrations as part of the learning process; and by encouraging learners to set goals; and (3) fosters *social and collaborative skills*, by encouraging collaboration through peer interaction and by promoting interpersonal skills²¹ Molina, E., Melo, H., Carolina, E., Pushparatnam, A., & Wilichowski, T.M. (2019). Teach: Observer Manual. Washington, D.C.: World Bank Group. <http://documents.worldbank.org/curated/en/949541542659103528/Teach-Observer-Manual>.

Factors supporting learning

Time used in learning. When learners have learning difficulties, they often need more time to practise basic skills and adopt the learned things. Sometimes, just giving them extra time to do exercises or in the assessment situation may be enough support. Similarly, flexible transitions as well as clear functioning models and routines give extra time for learning. It is useful to note that many learners needing support cannot pay attention for a long time, especially if the learning situation requires the passive following of teaching. Using different learner-activating work habits helps learners to pay consistent attention and adopt things. Giving them breaks and spacing the practice are necessary not only to enable learners to keep paying attention but also so they can manage the to-be-learned thing in the mind.

The teacher-child relationship. According to attachment theory²² Bowlby, J. (1974). Attachment – volume one of Attachment and Loss (3. ed.). London: Hogarth press., child individualisation and maturation mainly happen in early emotional relationships. The warm relationship between the mother and child emphasises a sensitive closeness towards a child's emotional expressions and actions as well as the

significance of open communication to a child's self-image and communication skills. A warm relationship between a teacher and child consists of closeness and open communication, while conflicts in the relationship may be seen as rare mutual agreement and discordant interaction²³Pianta, R. C. (2001). Child-Teacher Relationship Scale – Short Form. Odessa, FL: Psychological Assessment Resources.. A close teacher-student relationship strengthens a child's emotional security in the group and enables the child to focus on studying and practising skills. Positive emotional support from a teacher promotes children's reciprocal social support for each other and, thus, supports learner motivation and bonding to the school. It is also possible that when the teacher-student relationship is positive, the teacher shows more sensitivity to learners' individual needs and can thus better support them. These results underline the significance of the teacher-student relationship as a modifying factor in children's favourable development and a compensating factor for possible problems in other environments.

A teacher clearly plays a significant role in forming and maintaining positive interaction relationships in the classroom. They can, through their own actions, also support learners' interaction relationships with each other. It is known that a teacher's beliefs in regard to a learner's success are associated with how much a teacher encourages and gives positive feedback to the learner²⁴Deci, E. L., & Ryan, R. M. (1985). Intrinsic motivation and self-determination in human behaviour. New York: Plenum.. It is found that learners who are the object of positive beliefs from a teacher receive more attention, positive feedback, and encouragement than learners for whom the teacher has low expectations of learning.

Learner's gender, behaviour, and learning difficulties seem to affect the interaction and relationship between a teacher and child. The emotional relationships between teacher and child,

as well as the approval of the former, are particularly important to children who have difficulties in their learning. Moreover, when a family has a child who needs support in school, the building of a positive, trusting relationship requires the teacher to initiate and sensitively maintain the interaction relationship with the child and parents²⁵Lerkkanen, M.-K., Kikas, E., Pakarinen, E., Poikonen, P.-L., & Nurmi, J.-E. (2013). Mothers' trust toward teachers in relation to teaching practices. *Early Childhood Research Quarterly*, 28, 153–165.. It is important to note that the beneficial results of positive interaction processes with a school tend to accumulate and affect the child's learning and success throughout their school career.

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Self-regulation skills. Goal-setting, perseverance, and persistence in learning require self-regulation skills. Self-regulation skills begin to develop in early childhood and have a clear connection to the development of linguistic and academic skills. The development of self-regulation skills enables children to learn to set goals themselves and evaluate their own progress. Children can be helped to concretise goals regarding behaviour or skill learning by dividing the latter into sub-goals. When goals are reachable and special attention

is directed to reaching them, learners also commit to them, and reaching them becomes rewarding. Many experiences of failure may cause children to form weak or even negative perceptions of themselves as learners. Sometimes, low expectations from the environment may also support this kind of self-perception.

Learning strategies. All children benefit from good teaching strategies: children become aware of the significance of different strategies related to learning and why they work, as well as when and where they can be used. However, it is not very useful to teach strategies as separate skills; rather, they should always be connected to certain skills to be learned, such as reading or understanding text²⁶. Mitchell, D. (2014). What really works in special and inclusive education. Using evidence-based teaching strategies. London: Routledge.. For example, *internal memory strategies* (mind maps, word lists, or hint words) help in memorizing and recollecting things from memory, while *external memory strategies* (notes, underlining, or making summaries) help learners retain things in their memory.

Clarity and consistency of instructions. All children benefit from clarity and consistency in instructions; moreover, clear and consistent instructions can be seen as an example of a better working environment in the classroom. Clarity and consistency are especially important to children who have difficulties in learning or behaviour regulation. They often need strong instruction and structuring from the teacher. In practice, this may mean, for example, use of concrete working instructions, dividing the instructions into subparts, or clarification and demonstration of behavioural expectations. In this way, structures are created which, after repetition, help children to function in familiar surroundings and situations, directing their attention to the learned things and supporting understanding and remembering, especially if they have difficulties remembering or understanding linguistic

instructions.

Demonstrating teaching and modelling behaviour. Demonstrating the to-be-learned things in different ways supports all children's learning. Young children learn by modelling; later on, moreover, modelling is an efficient way to learn many skills. In addition to *modelling* behaviour, it can be described and commented on linguistically. *Combining behaviour and language* supports in this way also develops executive functioning. As learning difficulties often include linguistic difficulties, teaching cannot be based solely on spoken or written language. Use of the senses, emotional experiences, and movements support learning, as do pictures, functionality, and learning by doing.

Repetition and rehearsing of the learned skills. Management of the basic skills is a prerequisite for later learning. As skills develop, it is possible to deepen and widen them, and apply them to learn new skills. Repetition and rehearsal are needed for the learned skill to become automatic and to make sure that the learned aspect is understood and can be retrieved from the memory. As a weak working memory is often related to learning difficulties, there may be a considerable need for repetition and rehearsal. Although the similarity of learning situations gives the child a sense of control and helps them to concentrate on the topic, some children who need support for their learning may have a tendency to cling to familiar ways of acting or repeating things. Rehearsal may mean returning to the same thing repeatedly in different ways. Rehearsal and practice are not only needed by those who have difficulties in their learning; rather, for example, talented musicians and athletes practise all the time to keep up their skills and achieve mastery.

Although a skill may already have been acquired, practice usually continues to ensure it is mastered. Short, frequently repeated, practices are usually more efficient than practices which are longer but rarely performed. Repetition-based

practices are well suited, for example, to increasing the accuracy and fluency of reading syllables or words. The number of repetitions has to be estimated for each child so it is sufficient, but neither too high nor over too long a duration, to make the practice reasonable and encourage concentration and motivation.

Homework is one way to increase the number of repetitions and to rehearse learned things. However, homework suitable for the learner must be planned, both as regards quality and quantity, and the child must be able to do it independently. Parental support with homework is also important. Parents should monitor homework and encourage independent practice, particularly for children who have learning difficulties²⁷ Silinskas, G., Kiuru, N., Aunola, K., Lerkkanen, M.-K., & Nurmi, J.-E. (2015). The developmental dynamics of children's academic performance and mothers' homework-related affect and practices. *Developmental Psychology*, 51, 419–433..

Usually, new skills are learned when they are persistently repeated and rehearsed. On the other hand, it is not clear how learned skills are generalised, and how they can be used and applied in new and different situations. For this reason, it is not usually enough to practise a single skill; rather, their usage and applying is useful to develop simultaneously. It is good to remember that as the basic skills strengthen, their application skill can also be supported. This means, for example, that while children learn to read words and sentences, their reading comprehension is also developed, or when they learn basic calculation skills, they are also practising problem solving skills.

Supporting learning difficulties. When it is noticed that a child is struggling in learning, it is first important to find out which skill or aspect to learn is causing the difficulty. When planning individual and more intensive support, it is essential to assess carefully the nature of the problem so

that suitable forms of support can be chosen, and it is known how the effectiveness of the support can be monitored and evaluated. After this, the teacher can enhance their teaching and adjust their practices to better suit the support needs of this particular child. Adjusting practices can entail, for example, enhancing the practice, repetition, or demonstration by ability grouping or giving the learner other possibilities of extra practice. Moreover, it is important to reinvigorate learner motivation, which may have disappeared, and motivate the child to engage in interesting practices. Sometimes, it may be enough to increase concrete and positive feedback about success and progress. If these procedures are not enough, consideration must be given to how the support could be enhanced. The basics of enhancement are increasing individualisation and the amount of support given.

Evaluation of the effectiveness of support is a vital part of a successful support process. It is easy to assess the starting point and carry out regular follow-up assessments with normal exercises while the learner is practising the skill. In this way, the teacher gets time-serial information about the child's progress, which makes it possible to predict as early as within a couple of weeks whether the desired result will be achieved or the support should be enhanced or changed.

If there is a high number of students in a classroom, it is possible that in a small group, a child can learn and efficiently practise skills which they find difficult to learn. Individualised and very intensive support has also been shown to be effective for, for example, those learners who have shown challenging behaviour or attention deficit.

References

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