International Journal of Multidisciplinary Sciences and Arts

E-ISSN :2962-1658
Volume 5, **Number** 4, October 2026
https://doi.org/10.47709/ijmdsa.v5i4.8454

AFLS Basic Communication Indicators and Emerging Critical Thinking in Autistic Learners During Jigsaw Tasks

Yeanny Suryadi[1*], Sumarno[2], and Elvi Meilani[3]
[1,2,3]Universitas Negeri Medan, Indonesia
[1*]yeanny.suryadi@gmail.com

open access

***Corresponding author**

Article History:
Submitted: 17-09-2026
Accepted: 30-09-2026
Published: 10-10-2026

Keywords:
Assessment of Functional Living Skills; autistic learners; basic communication; critical thinking; jigsaw tasks.

The Journal is licensed under a Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0).

ABSTRACT

Functional communication may provide an accessible context for examining how autistic learners recognise problems, evaluate alternatives, and seek assistance. This descriptive, nonexperimental study explored behaviours associated with two Basic Communication indicators from the Assessment of Functional Living Skills (AFLS): requesting missing items and requesting information. Five Grade 1 learners in Phase A, comprising two girls and three boys, participated at a special school in Deli Serdang, North Sumatra, Indonesia. Data comprised classroom observations, interviews, and documentation during simple jigsaw activities with missing pieces. A researcher-developed observation rubric organised 13 indicators under analysis, evaluation, and solution generation, using four developmental rating categories. M, H, and Z were described as showing more independent searching and requesting, whereas A relied more on nonverbal communication and R required greater redirection and displayed distress. These behaviours illustrate variation in task-specific problem recognition and functional communication; they do not establish improvement in general critical thinking. Inconsistencies between the item-level descriptions and the aggregate score table prevented reliable numerical synthesis. Caregiver accounts suggested that opportunities to initiate requests differed across home environments, although causal effects of parenting were not tested. Selected AFLS indicators can structure observation of emerging problem-solving behaviours, provided that communication access, prompting, and emotional regulation are considered. Further research requires validated indicators, consistent scoring, and repeated observations.

INTRODUCTION

Education for learners with disabilities should support participation, communication, and increasing independence in everyday life. Household welfare and disability-related labour market exclusion provide a broader social context for this concern (Dartanto, 2022; Suryahadi, 2022). These issues make functional learning relevant to long-term participation, but they do not establish that any particular classroom activity produces later economic independence. In the Indonesian educational tradition, Ki Hadjar Dewantara's philosophy situates education within the development of the whole person and the pursuit of individual and social well-being (Henricus, 2015).

For autistic learners, recognising a difficulty and communicating a need are practical components of participation in classroom routines. A missing object, an incomplete activity, or unavailable information can create an opportunity to inspect a situation, consider a response, and seek support. Such actions may reveal aspects of emerging reasoning, although successful requesting alone is insufficient evidence of general critical thinking. The educational question is therefore how functional communication tasks can make these behaviours observable in ways that accommodate different expressive abilities.

This study examines two AFLS Basic Communication indicators during jigsaw activities among five Phase A learners. It asks which behaviours related to problem recognition, comparison, searching, and requesting become visible, and how learner characteristics and reported support contexts may inform their interpretation. The focus is Basic Communication within Basic Living Skills, with particular attention to the relationship between recognising an obstacle and initiating a request.

The study is guided by a deliberately bounded question: what can be observed when learners encounter a practical obstacle and have an opportunity to communicate about it? It does not assume that a single task captures a stable cognitive trait. Instead, it treats the activity as a window onto specific actions under particular conditions. This framing is important because learners may differ in receptive language, expressive communication, motor planning, sensory preferences, prior experience with puzzles, and comfort with an adult. Each of these factors can shape the visible response without necessarily indicating a difference in the ability to recognise that something is missing.

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

International Journal of Multidisciplinary Sciences and Arts
E-ISSN :2962-1658
Volume 5, Number 4, October 2026
https://doi.org/10.47709/ijmdsa.v5i4.8454

LITERATURE REVIEW

Independence and communication in special education

Indonesian education policy places creativity, capability, independence, and responsibility among its educational aims. Curriculum discussions cited in this study also emphasise learner independence (Anindito Aditomo, 2024) (Kementrian Pendidikan Dasar dan Menengah Republik Indonesia, 2024). The special programme for autistic learners concerns social interaction, communication, behaviour, sensory and motor functioning, and independence, alongside the broader graduate profile (Standar et al., 2025). Within this context, requesting an item or information can serve an immediate functional purpose while creating an opportunity for learners to make choices and act on a recognised need.

Curriculum phase and chronological age must be distinguished. Phase A identifies the instructional context of the participants; it does not demonstrate a measured mental age for each child. All participants in the present study were enrolled in Grade 1 within Phase A. Although the broader educational framework includes other phases, no Phase B comparison group was studied.

Critical thinking and observable reasoning

Critical thinking involves examining information through evidence, reasoning, and reflection (Sulaiman & Syakarofath, 2018). Classroom assessment can attend to how learners compare information, consider alternatives, and justify or revise a response (Vincent-Lancrin, 2023). In an early functional task, these processes may appear through repeated comparison of pieces, recognition of an incomplete picture, or a purposeful attempt to obtain a missing item. The interpretation must remain specific to the task and accessible communication mode.

The present rubric uses C4, C5, and C6 from the revised Bloom taxonomy as organising labels for analysis, evaluation, and solution generation. This mapping is an interpretive framework rather than a validated measure of those cognitive levels. Sorting by colour does not, on its own, establish analysis; noticing a gap does not establish evaluation; and requesting a piece does not necessarily demonstrate creation. The sequence and context of actions provide a more defensible basis for describing emerging reasoning than assigning a cognitive level to an isolated behaviour.

AFLS and selection of communication indicators

The AFLS, developed by James W. Partington and Michael M. Mueller, organises functional skills relevant to everyday independence. Its Basic Living Skills module includes self-management, basic communication, dressing, toileting, grooming, bathing, health and safety, and nighttime routines. Psychometric research addresses the broader assessment system (Etten et al., 2026); it does not validate the critical-thinking rubric developed for this study. Table 1 summarises the 22 Basic Communication skills used as the conceptual framework.

Table 1. Basic Communication skills in the AFLS framework

No	Skill
1	Follows instructions
2	Follows sequences of instructions
3	Uses a communication device
4	Spontaneously requests items and activities
5	Requests missing items needed for a task
6	Requests help
7	Requests information using what, where, who, and when
8	Requests information using how and why
9	Labels common objects
10	Labels familiar people
11	Labels actions observed at home, school, or in the community
12	Labels locations
13	Labels adjectives
14	Labels prepositions
15	Answers questions about personal information
16	Answers where questions about home, school, and community
17	Answers what questions about home, school, and community
18	Names previously observed people and activities
19	Reads simple words
20	Recognises functional words, universal symbols, and safety signs
21	Writes or types own name
22	Spells dictated words by writing or typing

The selected indicators were item 5, requesting missing items needed for a task, and item 7, requesting information using what, where, who, and when. Requesting a missing piece may follow recognition of an incomplete task and comparison of available alternatives (Zakaria et al., 2021). Research on questioning provides a rationale for

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

E-ISSN :2962-1658
Volume 5, Number 4, October 2026
https://doi.org/10.47709/ijmdsa.v5i4.8454

exploring connections between information seeking and thinking (Etemadzadeh et al., 2013; Rahmawati et al., 2026), but findings from other educational populations cannot be assumed to apply directly to these learners.

The task did not require mastery of all four question words. A verbal request such as "where?" could be considered alongside pointing, sustained attention to the incomplete board, or leading a teacher to the task. These nonverbal acts were treated as potentially communicative rather than as equivalent demonstrations of question-word use. Their meaning depended on the surrounding behaviour and the adult's response.

In practice, the distinction between requesting an item and requesting information can be subtle. A learner may ask for a piece directly, ask where it is, or signal that the activity cannot continue. These responses can serve related functional purposes, but they do not provide identical evidence. Requesting a piece may show that the learner has identified a needed object; asking where it is may additionally communicate a need for location information. Pointing to the incomplete board may communicate the problem without specifying the desired response. A careful account should retain these differences rather than compressing every response into a single measure of communication competence.

Jigsaw activities as an observation context

Jigsaw materials provide visible relationships between individual pieces and a complete image. The literature cited here addresses different questions: educational toy purchasing and design (Luo & Yang, 2025), conceptual connections between puzzle solving and language processing (Baouissidi & Habib, 2024), and attention and fine motor abilities in an autism case report (Almadani et al., 2022). These sources support considering puzzles as a visual learning context, while their different populations and outcomes limit direct inference about critical thinking in autism. In this study, puzzles functioned as a structured setting for observing responses to an incomplete task.

METHOD

Design and participants

A descriptive, nonexperimental qualitative design was used at a special school in Deli Serdang, North Sumatra, Indonesia. The participants were five Grade 1 autistic learners in Phase A: two girls, identified as M and A, and three boys, identified as H, R, and Z. The participants were 7–9 years old according to the study's methods record. Chronological age was not used as an explanatory variable. Participant initials are used throughout the report.

The case-based approach was appropriate for documenting how a small group of learners responded to a concrete classroom obstacle, but it was not designed to estimate prevalence or compare learner groups. The use of initials protects participants' identities in the report. Because the study involved children and described disability-related characteristics, the observations should be read as context-dependent accounts rather than fixed descriptions of each learner's capacity. A response observed during one puzzle activity may change when the materials, communication demands, familiarity of the task, or adult support changes.

Data sources were direct classroom observations, interviews concerning learner support and daily routines, and activity documentation. The analysis focused on contextual descriptions of learner performance and the support surrounding each response. Observations and interview accounts were interpreted descriptively rather than used to estimate an intervention effect.

Materials and observation procedure

Simple jigsaw puzzles containing approximately five or six pieces were presented with photographs of the completed images. In the missing-item task, learners attempted to assemble two puzzles and encountered an incomplete set. Observation focused on whether they differentiated pieces, compared the board with the model, searched nearby, checked another group of pieces, and approached the teacher when a piece remained unavailable. In the information-request task, the board was initially accompanied by only one or two pieces, creating a need to obtain further materials or information.

For interpretation, three features of the procedure are particularly important. First, the missing piece created a visible discrepancy between the model and the learner's current puzzle. Second, the materials allowed several possible responses, including checking other pieces, searching the surrounding area, or seeking adult assistance. Third, the teacher's response could either provide time for initiation or introduce additional prompts. These features made the activity useful for observing a sequence of actions, while the lack of a standardised prompt schedule limited direct comparison across learners. The task should therefore be understood as a naturalistic observation opportunity, not as a controlled test of reasoning.

The physical arrangement of the materials also matters. A clear model image and a small number of puzzle pieces reduce some demands and make the missing element visually salient. At the same time, success may depend on whether the learner can compare the model with the pieces, tolerate an incomplete image, and understand that the missing piece may be located elsewhere or supplied by an adult. The task therefore combines visual attention, task familiarity, searching, communication, and regulation. The observation rubric can help organise these dimensions, but it cannot isolate them experimentally in the present design.

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

International Journal of Multidisciplinary Sciences and Arts
E-ISSN :2962-1658
Volume 5, **Number** 4, October 2026
https://doi.org/10.47709/ijmdsa.v5i4.8454

The teacher's responses formed part of the observed interaction. The account includes waiting, verbal questioning, redirection, and, for R, increasingly firm instructions. These responses were not standardised across learners. Consequently, independent initiation, adult-prompted responding, and behaviour following distress must be distinguished when interpreting performance. The activities were structured observations within a nonexperimental design; no baseline, comparison condition, or pretest–posttest assessment was reported.

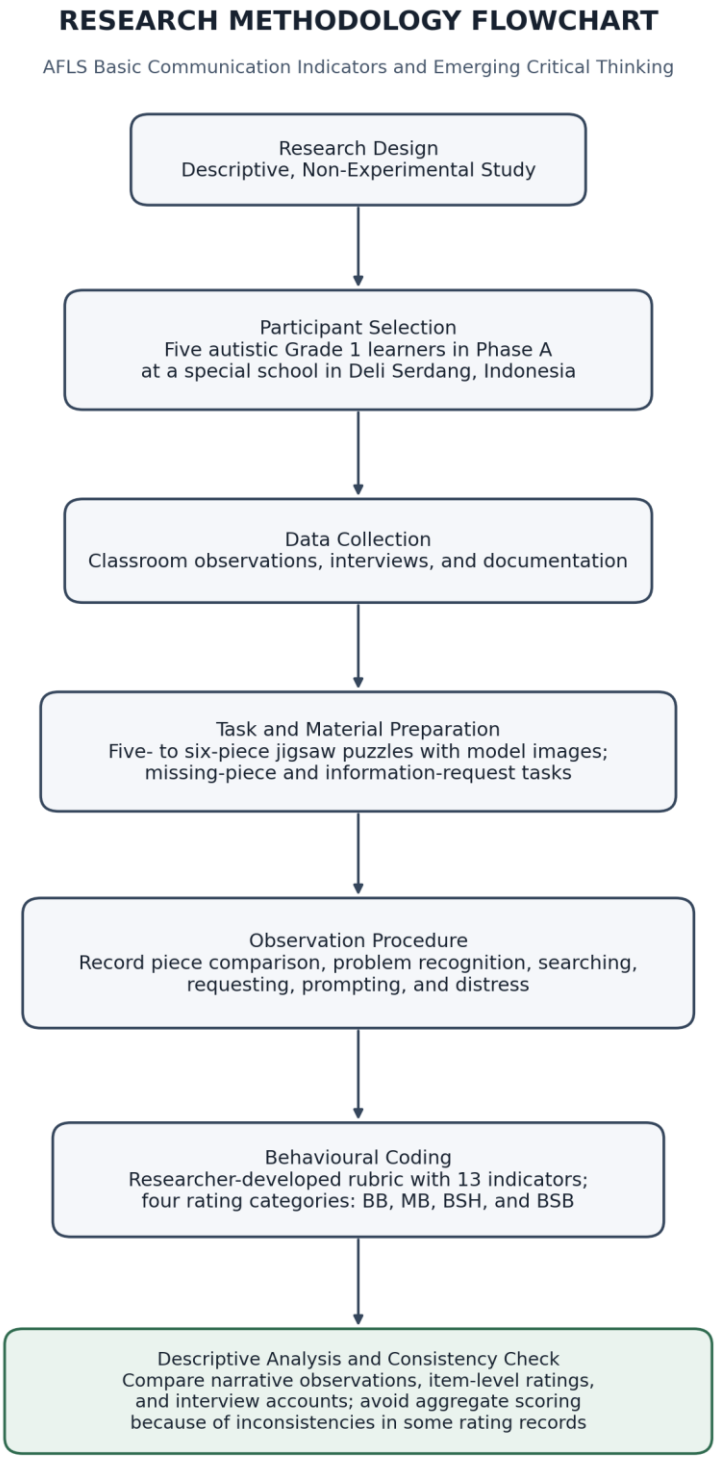


Figure 1. Flowchart of the Research Methodology

Note. The flowchart reflects the procedures reported in the study. BB, MB, BSH, and BSB are the four developmental rating categories used in the researcher-developed observation rubric. Because inconsistencies were reported in some rating records, the analysis prioritised descriptive behavioural accounts rather than aggregate numerical scores.

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

International Journal of Multidisciplinary Sciences and Arts
E-ISSN :2962-1658
Volume 5, Number 4, October 2026
https://doi.org/10.47709/ijmdsa.v5i4.8454

Observation indicators and developmental ratings

A researcher-developed observation rubric used four developmental categories: BB, not yet developed (1); MB, beginning to develop (2); BSH, developing as expected (3); and BSB, developing very well (4). These are classroom rating categories, not the standard AFLS scoring system. The categories were adapted from early-childhood assessment practice; validation for this population and operational thresholds between adjacent ratings were not established. Table 2 presents the 13 indicators across the two tasks.

A further distinction concerns the unit of interpretation. The rubric lists observable actions, whereas the cognitive labels summarise a possible function of those actions. The two should not be treated as interchangeable. For example, grouping pieces may reflect visual discrimination, prior familiarity, imitation, or an emerging analytic strategy. Similarly, approaching a teacher may be a purposeful solution when the learner has recognised that the piece is unavailable, but it may also follow an adult cue. A stronger rubric would record the action itself first and then separately record the context, the level of prompting, and the interpretation considered by the observer.

Table 2. Task indicators and proposed cognitive interpretations

ID	Task	Rubric label	Observable indicator
A1	Missing item	C4 Analysis	Distinguishes pieces by colour.
A2	Missing item	C4 Analysis	Groups pieces using the example image.
A3	Missing item	C4 Analysis	Attempts to assemble a simple five- or six-piece puzzle while remaining settled.
A4	Missing item	C5 Evaluation	Notices that the picture is incomplete.
A5	Missing item	C5 Evaluation	Checks whether other available pieces fit by shape and colour.
A6	Missing item	C6 Solution generation	Looks around the immediate activity area for the missing piece.
A7	Missing item	C6 Solution generation	Searches a plausible storage or materials location.
A8	Missing item	C6 Solution generation	Approaches the teacher to request the unavailable piece.
B1	Information	C4 Analysis	Repeatedly compares available pieces with the complete image.
B2	Information	C4 Analysis	Notices the difficulty and turns towards the accompanying adult.
B3	Information	C5 Evaluation	Uses a question, pointing, or attention to the incomplete board to communicate a need.
B4	Information	C6 Solution generation	Directs a request for the missing pieces to the teacher.
B5	Information	C6 Solution generation	Follows up the request or clarifies its referent when the teacher responds.

The cognitive labels in Table 2 indicate the intended analytic mapping, not confirmed levels of critical thinking. Remaining calm in A3 reflects regulation as well as task participation, while looking towards an adult in B2 may have several meanings. Research on thinking styles in autism provides relevant background (Brosnan & Ashwin, 2023), but gaze direction alone cannot demonstrate that a learner has evaluated a problem. Repeated questioning likewise requires contextual interpretation rather than automatic classification as higher-level thinking.

The consistency check also has implications for how findings are presented. Ordinal categories indicate ordered descriptions of performance, but they do not necessarily represent equal intervals between levels. Summing such categories can obscure meaningful differences between independent action, prompted action, and an incomplete response. Where the written narrative conflicts with an aggregate score, the conflict should be resolved against the original observation record before totals are reported. In this study, the available material did not permit that reconciliation, so descriptive profiles provide a more transparent account than a numerical ranking of learners.

Descriptive analysis and consistency checks

Observation narratives were considered alongside the item-level developmental ratings and caregiver or teacher accounts. The analysis describes patterns of comparison, problem recognition, searching, requesting, prompting, and distress. No statistical significance, change score, or causal effect was calculated. Interview accounts provide contextual interpretations rather than independently measured explanatory variables.

A consistency check identified conflicting allocations for R and Z between the cumulative summary and the detailed observations. Some category labels also differed from the level of independence described. These discrepancies prevented reliable numerical aggregation. The analysis therefore prioritised documented behaviours and treated the ordinal ratings as contextual information. Table 3 presents learner profiles without calculating totals or percentages.

RESULT

Searching and requesting during incomplete tasks

M differentiated the two groups of pieces, assembled the puzzle using the example, and noticed the missing piece. She checked other pieces, looked around and beneath the table, and then approached the teacher. Her question, “Where is it, Umi?”, was followed by “That one” and pointing towards the puzzle when the teacher asked what she meant. This sequence provides a task-specific example of comparison, unsuccessful searching, and clarification of a

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

E-ISSN :2962-1658
Volume 5, Number 4, October 2026
https://doi.org/10.47709/ijmdsa.v5i4.8454

request. H and Z were also described as showing patterns comparable to M, although their individual responses were recorded in less detail.

A initially followed a similar assembly sequence and searched among differently coloured pieces when the first puzzle could not be completed. She then scratched her head, appeared frustrated, whined, left her chair, and moved on the floor. After the teacher waited, A approached and led the teacher by the hand towards the puzzle table. When asked what she wanted, she again showed frustration. Her behaviour included a nonverbal attempt to recruit adult support, but the account does not establish that she independently formulated a verbal information request. Waiting and the teacher's questions formed part of the interaction and may have affected her response.

R attended closely to the complete cartoon image and looked towards the teacher when a piece was missing. He then returned his attention to the image rather than searching the visibly different group of pieces. Following verbal redirection, he briefly reoriented to the incomplete board. When instructions became firmer, he whined, screamed, and disrupted the puzzle. The sequence indicates difficulty sustaining task participation under those conditions. It does not establish the absence of reasoning ability or identify a single cause of the distress.

Table 3. Learner profiles in the observation narratives and detailed ratings

ID	Problem recognition and comparison	Searching and communication	Detailed rating pattern
M	Differentiated pieces and noticed an incomplete picture.	Searched nearby, approached the teacher, and clarified a verbal request with pointing.	BSH was marked throughout; some information-request descriptions nevertheless refer to emerging performance.
A	Completed the early comparison steps and noticed the missing piece.	Searched another group, displayed distress, and led the teacher to the board.	BSH for early indicators; MB for selected requesting and information indicators.
H	Described as comparable to M in the detailed account.	Reported to show a broadly similar searching and requesting pattern.	BSH was marked throughout; direct narrative detail was limited.
R	Recognised a difficulty but returned attention to the example image.	Needed redirection; independent searching was limited and distress increased with firmer instructions.	BSH for early indicators and MB for several later indicators; some labels conflict with the written descriptions.
Z	Described as comparable to M in the detailed account.	Reported to show a broadly similar searching and requesting pattern.	BSH was marked in the combined H/Z profile; the aggregate table gives a conflicting allocation.

Context reported in interviews

Interview accounts described differences in opportunities for independent action. M had received speech-related support and continued behavioural therapy. H reportedly received sustained parental support for learning at home following earlier therapy. Z was described as having access to therapy and home tutoring, with a relatively broad vocabulary. These accounts contextualise the reported communication patterns but were not accompanied by standardised language measures or a controlled comparison of services.

These interview descriptions are best treated as contextual information, not as a ranking of family support. Access to therapy, home tutoring, or structured learning may coexist with many other influences, and the interviews did not quantify the frequency or quality of opportunities to initiate communication. Similarly, a report that adults often anticipated a child's needs may suggest a question for future observation, but it does not demonstrate that the practice caused less independent requesting. Families adapt support in response to children's communication, safety, and daily needs; a cross-sectional account cannot determine the direction of influence.

For R, the account noted a cleft lip and associated speech difficulties, alongside a home routine in which adults often anticipated needs before he requested assistance. A was described as developing spoken language, receiving school and home support, and having previously received extensive assistance with dressing, eating, and toileting. Her caregiver was reportedly beginning to provide more opportunities for independent action. These descriptions do not establish that therapy access, household arrangements, or caregiving caused the observed differences.

The sequence of actions is more informative than the final state of the puzzle alone. A completed puzzle may result from independent comparison, repeated adult prompts, or direct assistance; these routes differ in the degree to which the learner initiates and sustains action. Conversely, an unfinished puzzle does not necessarily indicate that the learner failed to recognise the problem. A learner may notice the missing piece but lack an accessible way to ask for it, may need additional processing time, or may become distressed by the interaction. Describing these pathways can help teachers plan supports without overstating what a single task demonstrates about cognition.

DISCUSSION

Functional communication as a context for emerging reasoning

A practical implication is to offer more than one legitimate route for communication. Depending on an individual learner's current repertoire, a request may be expressed through speech, a gesture, pointing, a communication

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

E-ISSN :2962-1658
Volume 5, Number 4, October 2026
https://doi.org/10.47709/ijmdsa.v5i4.8454

device, or directing an adult towards the relevant object. These modes should be documented precisely rather than automatically scored as equivalent. The purpose is not to erase differences between expressive forms, but to avoid making spoken language the sole gateway to demonstrating a recognised need. The adult can then model a concise request, allow response time, and acknowledge the communicative intent while continuing to support development of more specific forms when appropriate.

Teachers can also make the communicative purpose of a task explicit without removing the opportunity for initiation. For example, when a piece is missing, the adult can wait briefly, keep the available pieces and model visible, and observe whether the learner looks, points, searches, or requests help. If support is needed, the adult may model a short phrase or gesture and then return the opportunity to the learner. The record should distinguish spontaneous action from a response after a verbal cue, gesture, demonstration, or physical guidance. Such distinctions make progress notes more useful for planning and reduce the risk of interpreting prompted performance as fully independent performance.

The observations suggest that selected AFLS communication indicators can help organise attention to how learners respond to a practical obstacle. For M, the progression from checking pieces to searching and then clarifying a request is consistent with purposeful problem solving within the activity. H and Z were described similarly, but the limited narrative detail supports a more cautious interpretation for those learners. The findings concern observable action in a particular setting, not a validated general critical-thinking score.

Critical thinking and self-determination offer complementary interpretive perspectives: the former concerns the quality of judgement, while the latter concerns motivation and the social conditions supporting autonomy (Facione, 2011; Legault, 2018). Together, these perspectives suggest examining both a learner's response to an obstacle and the opportunities available to initiate action. Motivation and autonomy support were not independently measured here, so this interpretation remains conceptual. Communication access and the interactional context nevertheless help explain why task completion alone is an incomplete account of independent performance.

Communication access and adult support

For classroom practice, opportunities for independent initiation can be built into ordinary routines without withholding necessary assistance. An educator might pause briefly when a learner encounters a missing material, make the relevant options visible, and provide an accessible way to request help. If the learner does not initiate, support can be increased gradually and recorded. This approach distinguishes an opportunity to act independently from a demand to cope without support. It also avoids treating independence as the absence of assistance; appropriate independence may include recognising when help is needed and communicating that need effectively.

A's hand-leading is relevant because a learner can recognise a need without having the spoken language required to express it. Treating an incomplete verbal question as a lack of thinking would confound expressive language with reasoning. Conversely, turning towards a teacher or pointing at a board cannot automatically be interpreted as evaluation or creation. Descriptions should identify the action, its referent, and the support provided before assigning a cognitive interpretation.

R's shift from attending to the model to distress after firmer instructions shows why teacher behaviour must be included in the analysis. The task placed demands on attention, communication, and regulation simultaneously. His response may reflect several interacting demands; the available evidence cannot distinguish them. A useful classroom interpretation therefore considers access to an understandable request, the level of prompting, and the learner's emotional state alongside completion of the puzzle.

Home opportunities and the limits of parenting explanations

A subsequent study could strengthen the evidence in several manageable steps. The observation definitions should specify what counts as independent, prompted, and physically assisted responding, with examples for verbal and nonverbal communication. Two observers could independently code a subset of sessions and discuss disagreements before the full dataset is summarised. Repeated observations should include more than one puzzle or functional task, and records should indicate the number of opportunities provided rather than reporting only whether a behaviour occurred. If the research question later concerns change over time, baseline and follow-up observations should use comparable conditions and document any changes in instruction or support. These steps would improve transparency without assuming that a small descriptive study can establish causal effects.

Future work should also consider whether the selected indicators are meaningful across different communication profiles. The same rubric item may be accessible to a learner who speaks in short phrases and to a learner who primarily uses gestures only if the operational definition explicitly accommodates those modes. A pilot phase with teachers and communication specialists could identify ambiguous items, establish examples and non-examples, and check whether observers interpret the categories consistently. Such development would not automatically validate the instrument, but it would provide a clearer basis for subsequent reliability testing and for deciding which behaviours should remain separate indicators.

Caregiver accounts raise a plausible question about whether anticipating every need reduces opportunities to practise initiating requests. However, the study did not measure parenting style or compare caregiving arrangements systematically. Research cited in relation to educational content and perceived helicopter parenting examines different

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

E-ISSN :2962-1658
Volume 5, Number 4, October 2026
https://doi.org/10.47709/ijmdsa.v5i4.8454

learner populations and outcomes (Aspar et al., 2025; Oh et al., 2021). It cannot establish that the families in this study caused their children's observed difficulties. Terms such as overparenting should therefore be treated as hypotheses requiring appropriate assessment rather than as findings about individual caregivers.

The observation of independent requests among some learners and greater reliance on adults among others is compatible with several explanations, including expressive language, previous learning opportunities, task familiarity, and the immediate interaction. The practical implication is to document what assistance is required and whether a learner has an accessible way to request support. It is not to infer reasoning ability from household composition or access to therapy.

Educational implications and study limitations

Questioning research supports continued investigation of links between requesting information and thinking (Muliati et al., 2023), while work on puzzles in younger children provides an additional developmental context (Khosyati et al., 2026). Neither source establishes transfer from the present jigsaw activity to everyday independence. Jigsaw completion is an instructional activity; requesting needed materials is the functional communication behaviour of interest. Generalisation to dressing, grooming, toileting, or other routines remains to be examined.

The principal limitations are the five-learner sample from one school, unspecified observation frequency, lack of a comparison condition, and inconsistent rating records. The observation rubric lacks reported expert validation, operational scoring thresholds, and interrater agreement. Teacher responses differed between learners, and the proposed C4–C6 categories overlap with communication, compliance, attention, and regulation. These constraints prevent claims of effectiveness, developmental improvement, gender differences, or causal effects of parenting.

Another issue for future reporting is the need to make observation opportunities explicit. A learner who is offered several chances to request a missing item has a different opportunity profile from a learner who encounters the obstacle once or receives immediate adult assistance. Session notes should therefore state how often the task was presented, how long the learner was allowed to respond, what prompts were used, whether the missing item was actually unavailable, and how the activity ended. Recording these details would help readers distinguish an absence of observed behaviour from an absence of opportunity to demonstrate that behaviour. It would also make it easier to interpret variation across sessions without treating every nonresponse as evidence of a skill deficit. In a descriptive study, procedural transparency is especially important because the strength of the conclusions depends on the completeness of the contextual record.

Future work should retain the functional focus while recording assistance levels, accepting accessible communication modes, and defining each rating through observable behaviour. Repeated observations across tasks and settings would help distinguish a single successful response from consistent performance. Independent scoring and reconciled item records are needed before numerical summaries are interpreted. A study designed to test improvement would additionally require appropriate baseline and follow-up evidence rather than an inference from one descriptive account.

CONCLUSION

Two AFLS Basic Communication indicators provided a useful framework for describing how five Phase A autistic learners recognised incomplete jigsaw tasks, searched for missing pieces, and communicated a need. The observations showed variation in independent initiation, nonverbal requesting, adult support, and distress. They support the feasibility of observing task-specific problem-solving behaviours but do not demonstrate that AFLS or jigsaw activities improved general critical thinking. Home routines and teaching interactions offered contextual explanations that require further investigation. Reliable conclusions about change and generalisation depend on consistent scoring, validated indicators, and repeated observation across everyday settings.

The educational value of this approach lies in making the support conditions visible. A record that notes only whether the puzzle was completed omits the route by which the learner reached that outcome. By contrast, a description of comparison, searching, requesting, prompting, and regulation can help educators identify the next achievable communication step. For one learner, the next step may be to point consistently towards the missing piece; for another, it may be to clarify a request after an adult asks what is needed. These examples are possible instructional implications of the observed patterns, not intervention outcomes demonstrated by this study.

REFERENCES

Almadani, Z., Ningsih, A. F., Purwaningsih, I., Wibowo, A. P., Pristianto, A., & Herlinawati, I. (2022). The Impact of Puzzle Games on Attention and Fine Motor Abilities Upon Cases of Autism Spectrum Disorder: A Case Report. *Physical Therapy Journal of Indonesia*, *3*(2), 58–62. https://doi.org/10.51559/ptji.v3i2.56

Aspar, F., Refdinal, R., Erizon, N., Jasman, J., Irzal, I., & A, Y. (2025). From passive to critical consumption: The role of educational content in short videos to improve students' critical thinking skills. *Jurnal Pendidikan Teknologi Kejuruan*, *8*(1), 60–72. https://jptk.ppj.unp.ac.id/index.php/jptk/article/view/423

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

E-ISSN :2962-1658
Volume 5, **Number** 4, October 2026
https://doi.org/10.47709/ijmdsa.v5i4.8454

Baouissidi, H., & Habib, D. S. (2024). *What Does a Jigsaw Puzzle Tell About How Cognitive " Mechanisms " Process the World in General and Language in Particular ? A Cognitive Linguistics Study*.

Brosnan, M., & Ashwin, C. (2023). Thinking, fast and slow on the autism spectrum. *Autism*, *27*(5), 1245–1255. https://doi.org/10.1177/13623613221132437

Dartanto, T. (2022). Natural disasters, mitigation and household welfare in Indonesia: Evidence from a large-scale longitudinal survey. *Cogent Economics and Finance*, *10*(1). https://doi.org/10.1080/23322039.2022.2037250

Etemadzadeh, A., Seifi, S., & Far, H. R. (2013). The Role of Questioning Technique in developing thinking Skills: The Ongoing Effect on Writing Skill. *Procedia - Social and Behavioral Sciences*, *70*, 1024–1031. https://doi.org/10.1016/j.sbspro.2013.01.154

Etten, N. Van, Kubina, R. M., Frazier, A., & Mueller, M. (2026). *and the Assessment of Functional Living Skills*. 1–16. https://doi.org/10.1002/bin.70092

Facione, P. a. (2011). Critical Thinking : What It Is and Why It Counts. *Insight Assessment*, (ISBN 13: 978-1-891557-07-1.), 1–28. https://www.insightassessment.com/CT-Resources/Teaching-For-and-About-Critical-Thinking/Critical-Thinking-What-It-Is-and-Why-It-Counts/Critical-Thinking-What-It-Is-and-Why-It-Counts-PDF

Henricus, S. (2015). Filsafat pendidikan Ki Hadjar Dewantara dan sumbangannya bagi pendidikan Indonesia. *Jurnal Filsafat*, *25*(1), 57–74.

Khosyati, N. I., Astini, B. N., & Gunawan, G. (2026). The Effect of Puzzles on the Cognitive Development of Children Aged 5–6 Years. *Indonesian Journal of Elementary and Childhood Education*, *7*(2), 105–114. https://doi.org/10.67434/ijece.v7i2.2512

Legault, L. (2018). Encyclopedia of Personality and Individual Differences. *Encyclopedia of Personality and Individual Differences*, 1–9. https://doi.org/10.1007/978-3-319-28099-8

Luo, S., & Yang, P. (2025). Enhancing purchase intentions for educational toys: A hybrid model analysis of children's 3D jigsaw puzzles. *Acta Psychologica*, *258*(May), 105079. https://doi.org/10.1016/j.actpsy.2025.105079

Muliati, B., Loka, I. N., Hakim, A., & Sofia, B. F. D. (2023). Hubungan Antara Kemampuan Bertanya Dengan Keterampilan Berpikir Kritis Materi Pokok Asam Basa Pada Siswa Kelas XII MIPA SMAN 1 Sakra Tahun Ajaran 2021/2022. *Chemistry Education Practice*, *6*(1), 72–77. https://doi.org/10.29303/cep.v6i1.3739

Oh, H., Cho, H., & Yim, S. Y. (2021). Yim, So Youn. *International Journal of Environmental Research and Public Health*, *18*(3).

Rahmawati, S., Munawarah, M., @ Khalid, K. A. T., Octavia Kusuma Wardani, D., & Rachmad Pratama, D. (2026). Modeling the Interrelationships of Critical Thinking Skills-Dispositions in Questioning Skills of Preservice Language Teachers. *International Journal of Language Teaching and Education*, *10*(2), 1–18. https://doi.org/10.22437/ijolte.v10i2.56911

Standar, B., Pendidikan, D. A. N. A., Pendidikan, K., Dan, D., Pendidikan, K., & Dan, D. (2025). *Kementerian pendidikan dasar dan menengah* (Number 021).

Sulaiman, A., & Syakarofath, N. A. (2018). Berpikir Kritis: Mendorong Introduksi dan Reformulasi Konsep dalam Psikologi Islam. *Buletin Psikologi*, *26*(2), 86. https://doi.org/10.22146/buletinpsikologi.38660

Suryahadi, A. (2022). Disability and Labor Market Exclusion: Evidence from Indonesia. *Sustainability Science and Resources*, *2*(1), 45–77. https://doi.org/10.55168/ssr2809-6029.2022.2004

Vincent-Lancrin, S. (2023). Fostering and assessing student critical thinking: From theory to teaching practice. *European Journal of Education*, *58*(3), 354–368. https://doi.org/10.1111/ejed.12569

Zakaria, I., Suyono, S., & Priyatni, E. T. (2021). Dimensi Berpikir Kritis. *Jurnal Pendidikan: Teori, Penelitian, Dan Pengembangan*, *6*(10), 1630–1649. https://doi.org/10.17977/jptpp.v6i10.15072

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.