Journal of Visualized Experiments

Universal Screening for Prevention of Reading, Writing, and Math Disabilities in Spanish

--Manuscript Draft--

Article Type:	Invited Methods Collection - Author Produced Video
Manuscript Number:	JoVE60217R5
Full Title:	Universal Screening for Prevention of Reading, Writing, and Math Disabilities in Spanish
Section/Category:	JoVE Behavior
Keywords:	Curriculum-Based Measurement, Screening, At-Risk, Reading, Writing, Math, Spanish
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Question	**Response**
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TITLE:

Universal Screening for Prevention of Reading, Writing, and Math Disabilities in Spanish

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KEYWORDS:
Curriculum-Based Measurement, Screening, At-Risk, Reading, Writing, Math.

SUMMARY:
This work presents a protocol to administrate Spanish Curriculum-Based Measures for the early detection of reading, math, and writing difficulties. These tools could help practitioners and applied researchers working in the context of the Response to Intervention model.

ABSTRACT:
The purpose of this study was to describe a Spanish protocol that includes reading, writing, and math Curriculum-Based Measures (CBMs) aimed at early detection of students at risk of presenting learning disabilities (LD). Early identification of LD is a critical component of the Response to Intervention (RtI) model. In early grades, the screening of foundational skills mentioned above can provide a data-based guideline for identifying students requiring a more intensive response-based intervention before starting elementary school. We designed different CBMs based on indicators of basic early reading, writing, and math skills [*Indicadores de Progreso de Aprendizaje en Lectura, Escritura y Matemáticas, IPAL, IPAE, and IPAM respectively*] that aim to fulfill the twofold objective of universal screening and evaluation of the Spanish students' progress. For reading, IPAL includes alphabetic principle, phonological awareness, concepts about print, and riddles in kindergarten. In first and second grades, IPAL includes alphabetic principle, nonsense words fluency, maze sentences, and oral reading fluency. In addition, it includes phonemic segmentation for first grade and prosody for second grade. For writing, IPAE includes copying letters, writing allographs, dictated letters, dictated words with arbitrary spelling, dictated words with rule-based spelling, dictated nonsense words, dictated sentences, writing sentences, and writing a story for first-third grades. Finally, for math, IPAM includes number comparison, missing number, number identification, quantity array, and counting aloud for kindergarten, and number comparison, multi-digit computation, missing number, single-digit computation, and place value for first-third grades.

INTRODUCTION:
Response to Intervention (RtI) model is a multi-tier method for preventing and identifying learning disabilities (LD). The National Center on Response to Intervention[1] defined the four

essential components of RtI: a) multi-level instructional and behavioral system for preventing school failure; b) universal screening; c) progress monitoring; and d) data-based decisions. The first step in the multi-level process is the identification of children at risk for LD using universal screening with all students. Curriculum-Based Measurement (CBM) is the most commonly used assessment tool, both for universal screening and progress monitoring of foundational skills (i.e., reading, writing, and math) tracking student's performance academic areas in which the student does not reach the basic goals established in the school curriculum[2]. Universal screening is defined as a systematic assessment of a population to identify those individuals who are at risk[3].

In the context of the RtI model, universal screening is performed in the general classroom as a first step in identifying students at risk of not meeting the standards of performance required in one or more academic areas[4]. Universal screening is generally conducted three times per school year (e.g., fall, winter, and spring)[5,6]. Different classification criteria have been used to select the best cut-off score to identify low performance and at-risk students for reading, math and writing, ranging from 10th percentile to 35th percentile[7,1.8] or 40th percentile[9]. However, the most commonly used to detect at-risk students have been the 20th percentile[10] and 25th percentiles[11].

Students detected at risk for learning problems or students not showing an adequate response to the core instruction are selected to receive more intense instruction in subsequent tiers[12]. According to Deno[13], the use of CBM allows teachers and other education professionals to determine whether students are benefiting adequately from the intervention program that they receive in the ordinary classroom.

An ideal screener should be practical; in other words, it must be low-cost, brief, easy to administrate, score, and interpret and be tied to the instruction[14]. Due to the need for CBMs to be repeatedly administered to the students, they must include alternate forms, which should be easily and rapidly administered by teachers. CBMs are designed based on literature evidence and the local curriculum and must be standardized, reliable, and valid[13,15] , providing teachers with an efficient and brief tool in order to determine students' risk status[16,17], and assess intervention effectiveness[18,19]. In this regard, several technical features must be met by the CBMs: reliability, criterion validity, classification accuracy, and growth rate. To meet the need for screening the critical reading, writing, and math abilities of Spanish monolingual-children within the context of the RtI model, the following CBMs were designed.

PROTOCOL

The protocol follows the guidelines of the Ethics Committee of the Universidad de La Laguna (ULL). To be able to participate in the study, parents were required to sign a consent form. Both schools and families were informed about the purpose of the study.

NOTE: We designed a set of CBMs based on indicators of basic early reading, writing, and math skills (*Indicadores del Progreso de Aprendizaje en Lectura, Escritura y Matemáticas, IPAL[20], IPAE[21], and IPAM[22], respectively*) that aims to fulfill the twofold objective of universal screening and progress monitoring of Spanish students. Each CBM has three parallel or alternate forms, which are administered each three months (i.e., fall, winter, and spring) to

establish students' risk status. In addition, there are four alternate forms of equivalent difficulty for assessing students' monthly progress (i.e., December, January, March, and April). In order to avoid ceiling effects, most tasks measure fluency and include more items than needed.

1. General Procedures for Spanish Curriculum-Based Measures (CBM)

1.1. Carry out data collection by research assistants that received theoretical and practical training about the administration of each CBM (i.e., IPAL, IPAM, and IPAE).

1.2. Perform the first training at the beginning of the study, involving a 5 hour session with role-playing. Perform two more sessions, of 4 hours each, before the winter and spring assessments to review with the examiners the rules of administration.

1.3. At the beginning of the study, assign participant classrooms to one research assistant for the entire study.

1.4. Collect data during a 1-week window in the fall, winter, and spring, with an interval of three months between each administration. Use a different sample of students for each CBM.

1.5. Counterbalance task order across schools; therefore, each research assistant has to explain each task to the students following their school task order.

1.6. Depending on the CBM (i.e., IPAM, IPAL, or IPAE), administer them individually in a room isolated from noise and distractions, or in a group, in the students' usual classroom.

1.7. After each data collection, have a day-session to give feedback to the examiners and solve possible doubts about task correction.

1.8. For the group-administered CBMs (i.e., IPAM and IPAE for first-third grades respectively), before explaining any task, have the research assistant ensure that every student had the student booklet open on the same page and a pencil, removing everything else from the table. Ensure that nobody has an eraser. Explain each task on the board, following the instructions.

1.9. Model each task (i.e., the research assistant does the first example of the task on their own, exemplifying to the students how to solve the task) to ensure that all the students understood what they had to do. After that, perform the next examples using questions to guide the students and give them feedback.

1.10. Once the research assistant is certain that all the students understand the task, inform the students about the importance of doing the task as fast and accurate as they can, trying not to be wrong.

1.11. As each IPAM task lasts two minutes, instruct the students to do the task when the research assistant says "Start" and stop when they say "Stop." While the students were

answering each task, have the research assistant watch that everyone is doing the correct task. Adminsiter the IPAE in two sessions each time (i.e., five tasks per session).

1.12. For the CBMs individually administered (i.e., IPAL and IPAM for kindergarten), have the examiner sit down in front of the student. Do not let the students see the examiner registration sheet. However, the students' stimulus booklet must be in front of them, allowing them to see each stimulus clearly.

1.13. Administer all IPAL measures and IPAM measures for kindergarten individually, in a room free of noise and distractions, following this procedure: (1) the research assistant makes sure that the student cannot see the examiner's registration sheet; (2) the research assistant models the task performing the first example; (3) the student must perform at least one example receiving feedback from the research assistant; (4) once the student performs at least one example correctly, the examiner must say, "*Try to do it as quickly as you can but without making mistakes. Are you ready?* (wait for the student to confirm) *Let's start!"*; (5) the research assistant tracks the student progress using the registration sheet; (6) if the student struggles or hesitates for over 3 seconds, the examiner must point to the next stimulus without revealing the answer; (7) at the end of the testing time, or if the student completes the assignment, the examiner must place a bracket in the last stimulus expressed by the student, stop the stopwatch saying "Stop," and thank the student.

1.14. Administer the criterion measure at the end of the spring term: for reading, the Early Grade Reading Assessment (EGRA)[23]; for writing, the Early Grade Writing Assessment (EGWA)[24]; and for math, the *Cálculo numérico* measure (Sn, [Numerical Computation]) from *Batería de Aptitudes Diferenciales y Generales E1 and E2* (BADyG-E1 and E2 [Battery of Differential and General Abilities][25]. Use these external standardized measures to analyze CBMs discriminant, concurrent, and predictive validity.

2. **Indicator of Basic Early Reading Skills**

2.1. In kindergarten, IPAL is composed of five tasks (see **Figure 1**). Depending on the grade and the skill assessed, administer IPAL measures following specific instructions.

[Insert Please Figure 1 about here]

2.1.1. Alphabetic principle is comprised of two parts: Letter-sound fluency and letter-name fluency. First, ask the student for the name of the letters, and second, for the sound. For both tasks, give the student the following instructions: *"This page contains mixed letters. When I tell you to start, read the name (or sound in the second task) of each letter aloud, starting here (point to the top left) and continuing to the right and down (point the reading direction). Let's first do an example together."*

2.1.2. *Phonemic awareness* requires students to isolate the initial phoneme of orally presented words. In this task, give the following instruction: *"All words start with a sound, for example, if I say "mom,'' we know that the first sound of the word is /m/. Let's practice together."*

2.1.3. *Concepts about print–questions* evaluates basic knowledge about how print works through six questions. In this task, show a child's textbook to the student and give the following instructions: *"Look at this book. I will ask you some questions, and I want you to answer as many as you know. Once the test begins, I won't be able to help you. If you have any doubt, ask me before or after I start the timer. If you don't know the answer to a question, don't worry, we'll move on to the next one."*

2.1.4. *Concepts about print–images*. This CBM comprises 14 images presented in the student's booklet. In this task, ask the student to point out several stimuli by following these instructions: *"(1) point out what we can read in these images; (2) point out the signs that are letters; (3) point out which of these signs are numbers; (4) point out where is a written word."*

2.1.5. *Riddles* aims to evaluate expressive vocabulary and oral comprehension through 20 incomplete orally presented sentences. In this task, give the following instructions: *"I will tell you* some *riddles that describe an object, a place, or any living being. For each riddle, I will show you three drawings, and you have to name the one you think is the answer to the riddle."*

2.2. In first grade, IPAL is composed of six tasks (see **Figure 2**). Depending on the grade and the skill assessed, administer IPAL measures following specific instructions.

[Insert Please Figure 2 about here]

2.2.1. *Alphabetic principle* (i.e., letter-sound fluency and letter-name fluency) and *concepts about print-questions:* Administer in the same way as for kindergarten.

2.2.2. *Phonemic segmentation.* Have the students segment orally nonsense words into their phonemes by following this instruction: *"I will read you aloud some invented words which have no meaning. What you have to do is separating every sound of the word, in other words, say aloud all the sounds the word has, one by one."*

2.2.3. *Nonsense words fluency*. Have the student read as many nonsense words in one minute by following this instruction: *"I will show you a page with a lot of invented words for you to read. They are not real words, but see how I can read them: Sacu, Mura, and Osi."*

2.2.4. *Maze sentences* aim to evaluate receptive vocabulary and phrase-level *comprehension*. In this task, show 20 maze sentences to the student by following this instruction: *"I will give you some sentences to read, where the last word is missing. As in a riddle, choose between the three words below the maze sentence to complete it. You can point the answer with your finger or read it aloud."*

2.2.5. *Oral reading fluency* comprises a 1-minute fluency assessment reading connected text with speed and accuracy. In this task, show a 133-word text with three paragraphs to the student by following this instruction: *"I will give you a story you will have to read aloud. If you have a problem with one word, don't worry, move on to the next one and continue reading."*

2.3. In second grade, IPAL is composed of the five tasks (see **Figure 3**). Depending on the grade and the skill assessed, administer IPAL measures following specific instructions.

[Insert Please Figure 3 about here]

2.3.1. *Alphabetic principle* consists only of the letter naming task. Administer in the same way as for kindergarten and first grade.

2.3.2. *Maze sentences*: Administer in the same way as for first grade but with a 1-minute limit instead of five.

2.3.3. *Oral reading fluency* and *Nonsense Words Fluency.* Administer in the same way as for *first* grade.

2.3.4. *Prosody* assesses the student fluency when reading a connected text with speed and accuracy, also considering the pitch of the initial and final parts of exclamatory and interrogative sentences and pauses. In this task, show a 39-short text to the student by following this instruction: *"Now I will read you this short story, and I want you to pay attention to the pauses I make and the intonation I use. Notice how I read the questions and exclaims them. When I finish reading it, I want you to read it in the same way, paying attention to the pauses and the intoning of questions and exclamations."*

3. **Indicator of Basic Early Writing Skills**

3.1. Before starting each writing task where timing is relevant, propose the task as a game to the student. The game is that at some unexpected point in the task, they will be told to make a mark just below the letter, word, or sentence they are writing. Start timing when the child begins to write the first linguistic unit (i.e., letter, word, or sentence).

3.2. For copying tasks

3.2.1. Give the child expectations of success with phrases like *'I know you know write very well; I wish you would* ...' or *'Your teacher told me you've learned to write very well.'* Say, *'If you can't write* it (*letter* or *word*), *don't worry, continue with the next one'.* If the child does not begin to write the first example, say *'See how I do it,'* and write out the first example.

3.2.2. After the first minute, tell the child to make the mark, but not that they have a set time to complete the task, or that the time taken is being measured.

3.2.3. Do not stop the stopwatch at the end of a minute: let them finish writing all the letters or words and continue to time the process until they have finished writing the last linguistic unit. Stop timing if the child indicates they cannot continue or after the full five minutes is up.

3.3. For dictation tasks, if the child does not begin to write the first example when dictated, say *'See how I do it,'* and show the child how to do the first two letters or words of the example. Children must always remember to write from left to right and top to bottom and must write within the ruled lines on the answer paper.

3.3.1. Repeat twice, slowly and pronouncing each word correctly. If the child asks if the word can be repeated, do so only once more. Do not repeat the word aloud while writing, as the child might take this as a model and use this strategy when trying to write the following words.

3.4. For written production tasks, after the first 5 minutes, tell the child to make the mark, do not stop the stopwatch, and continue to time the process until they have finished writing the last word. Stop timing if the child indicates they cannot continue or after completion of the full ten-minute period.

3.5. Each form of IPAE is composed of a booklet for the student and a booklet or record sheet for the examiner. Perform the following tasks (see **Figure 4**).

[Insert Please Figure 4 about here]

3.5.1. *Copying letters.* See if the child has acquired the motor patterns for writing letters.

3.5.1.1. Ask the student to choose either the manuscript or cursive template, whichever they consider easier and feel they can do faster. Ask the student to copy the letters of the alphabet, staying within the lines of the ruled paper and using their preferred style, cursive, or manuscript. Ask the student to copy as fast as possible, trying not to be wrong. Note that the child must write from left to right and top to bottom.

3.5.1.2. Start timing when the child begins to write the first letter. If the child does not start writing when prompted, say *'See how I do it,'* and write the first two letters of the alphabet on the top two lines at the upper left of the template: 'a,' 'b.' If after 5 min, the child has not completed the exercise, ask the student to stop and leave this subtask.

3.5.2. *Allographs.* See if the child is able to select the correct allograph (lower-case letter) for each capital letter. Ask the child to write the lower-case letters of the alphabet. This time, they are shown the capital letters of the alphabet and must write the corresponding lower-case allograph. Ask the student to write the letters within a space between the parallel horizontal lines of the ruled paper (show them if necessary). Ask the student to write as fast as possible trying not to be wrong. Give expectations of success and propose the task as a 'play of marking the letter' from the beginning.

3.5.3. *Dictated letters.* See if the student knows the graphic representation of the *letters* of the alphabet. In this task, dictate the 27 letters of the alphabet in a random way by following these instructions: Tell the student that you *are we going to dictate letters and they have to write them on the sheet.* Dictate each letter twice.

3.5.4. *Copying words.* See if the child has acquired the motor patterns for writing words. Ask the student to copy words, staying within the lines of the ruled paper and using their preferred style, cursive or manuscript. Ask the student to copy as fast as possible trying not to be wrong.

3.5.5. *Writing dictated words with arbitrary spelling.* Assess if the child is able to write *words* that are spelled differently than they are pronounced – that is, words that do not conform to

any spelling rules. Ask the child to write down words that be dictated. Start dictating the first two words of the CBM task.

3.5.6. *Dictated words with rule-based spelling.* If the child is able to write words that conform to spelling *rules*, this indicates that they have memorized these rules, recalling the orthographic representation. Determine the use of the lexical route by the student.

3.5.6.1. Ask the child to write down the words to be dictated. Start dictating the first two words of the CBM task. Repeat twice slowly, pronouncing each word correctly. If the child asks repeat a word, do so only once more. If the child does not begin to write the first word of the CBM task when the examiner dictates it, say 'See how I do it' and write it down as an example.

3.5.7. *Dictated nonsense words.* Assess if the child is able to write the graphemes that correspond to the phonemes of the word. The spelling of pseudowords indicates knowledge of the rules of phoneme–grapheme correspondence. If the child makes many more *mistakes* in writing pseudowords, it will imply they have difficulties in using the phonological route. These pseudowords also follow certain spelling rules: if the child applies the rule, this indicates they have memorized it.

3.5.7.1. Ask the child to write down the invented words examiner will dictate. Start dictating the first two invented words as examples. Repeat twice slowly, pronouncing each pseudoword correctly. If the child asks for a pseudoword to be repeated, do so only once more.

3.5.8. *Dictated sentences.* Assess if the child is able to write a sentence from dictation. Ask the student to write down a sentence that the examiner is going to dictate. Start dictating the test sentence. First, say the sentence, then repeat each word slowly, pronouncing them correctly, giving the child the time to write. Do not show a visual model of the *sentence*. If the child asks the examiner to repeat a word, do so only once. Remember to dictate the first sentence and give the child time to write it down completely, then proceed to dictate the second. Remember not to verbalize the endpoints of each sentence.

3.5.9. *Free writing two sentences.* Assess if the child is able to write an independently composed sentence. This task assesses the ability of the child to convert oral language *into* written language.

3.5.9.1. Have the student to start up a conversation with the examiner about their interests. Ask about their favorite games, hobbies and so on. Once the child has said one or two things, ask the student to write two sentences on what they have just described.

3.5.9.2. Ask the student to write one sentence and then add a second immediately below the first. Briefly explain what a sentence is: a set of meaningful words. Start timing the process when the child starts writing.

3.5.10. *Writing a story.* Assess if the child has acquired narrative-writing ability. Have the student explore a picture and ask the child to write a story based on that picture. Give the

child an answer sheet with a picture on it, and say, '*I'll show you a picture for you to write a story about*. *You should take your time to look at the picture (about 30 seconds) and then start writing. Try to remember a story like this that has happened to you or someone you know*.' If the child does not know how to do this, have the examiner help the student by writing the first two words of the story.

4. **Indicator of Basic Early Math Skills**

4.1. Individually administer the IPAM for kindergarten (see **Figure 5**). Depending on the grade and the skill assessed, administer IPAM measures following specific instructions.

[Insert Please Figure 5 about here]

4.1.1. Have the research assistant sit down in from of the student, avoiding them to see the examiner registration sheet. However, ensure that the students' stimulus booklet is in front of them, allowing seeing each stimulus clearly.

4.1.2. Model each task of the IPAM for both kindergarten and primary school to the students, and the examples solved with the research assistant making questions and giving feedback to the students.

4.1.3. Administer each task in 1 min. Ask students to solve them as fast and accurately as they can.

4.2. To solve each task students can point or say aloud the answer. Depending on the task, have the examiner give the following instructions.

4.2.1. *Number comparison*: Assess students' knowledge of numerical magnitudes. Have the research assistant give the following instruction: *"In this game we have some pairs of numbers. Look at the line. Do you see two numbers in each box? You have to choose the biggest number."*

4.2.2. *Quantity array:* Assess students' subitising and counting skills. Have the research assistant give the following instruction: "*In this game we have some boxes with dots inside them. You have to tell me how many dots are in each box."*

4.2.3. *Missing numbers:* Explore students' number line knowledge. Have the research assistant give the following instruction: "*In this game we have some boxes, with some number sequences inside them, but one of the numbers is not in his place. You have to point, which one, of the numbers under the box, is the correct one."*

4.2.4. *Number identification*: Assess students' number knowledge. Have the research assistant give the following instruction: "*In this game we have some numbers. Look at the line. You have to tell me the name of each number."*

4.2.5. *Counting aloud:* Assesses students' knowledge of the counting sequence. Have the research assistant give the following instruction: "*In this game you have to count aloud from*

1 as far as you know. Have you understood it? Very well. When I say "go,'' you have to start "Go."

4.3. For all tasks, with the exception of counting aloud, have the examiner give the next instruction also to the student before to start: "*Now we are going to turn the page. On this page we have a lot of lines like before, in the same order than before. First, we are going to do the first line, then the second one and so on. When you finish this page, you have to turn the page and continue on the next page. I am not going to ask you anything. You have to do it on your own. You try to do it right, and as fast as you can, looking for you not to be wrong. If you don't know the answer, don't worry, skip it and continue with the next one. When you finish this page, remember going to the next one. When I say "go,'' you have to start. And when I say "stop,'' you have to stop*."

4.4. Administer the primary school IPAM as a group. Administer each task in 2 min. Ask the students to solve them as fast and accurately as they can. It is composed of five tasks (see **Figure 6**) where items' complexity changes according to the grade (i.e., first, second, and third grade). Depending on the task, have the examiner give the student the following instructions.

[Insert Please Figure 6 about here]

4.4.1. *Number comparison*: Assess students' knowledge of numerical magnitudes. Have the research assistant give the following instruction: "*In this task, we have several pairs of numbers." "Look at the first row. Do you see that in each box there are two numbers? What you need to do is circle the larger numbe*r".

4.4.2. *Multi-digit computation and single-digit computation*: Assess students' ability to solve multi-digit and single-digit computation problems. Have the research assistant give the following instruction: *"In this game we have to solve additions, subtractions, and multiplications."* Multiplications are only included in second and third grade.

4.4.3. *Missing number*: Explore students' number line knowledge. Have the research assistant give the following instruction: "*In this game, we must identify the missing number to complete a sequence of three numbers*. *Do you see that in each box there are two numbers and a gap? We have to fill in the hole with the missing number."*

4.4.4. *Place value*: Assess students' knowledge about the base-10 system. Have the research assistant give the following instruction: "*In this game, we must find out the number that corresponds to the drawing, knowing that each square represents a unit and each column a ten."* For all tasks, students have to write the correct answer.

4.5. For all tasks, have the examiner give the student the same instruction: *"When I tell you "Start," you can turn the page and start. Remember that you have to complete the task from left to right and from top to bottom. Work quickly, trying to do well and quietly, so you can complete* as *many rows as possible. If you do not know how to solve a task, leave it blank and continue with the next one. When you finish completing one sheet, you can move on to the next and continue working. When I tell you "stop," you must leave your pencil on the table."*

REPRESENTATIVE RESULTS

In this study, the students were classified following these criteria: at-risk ≤20th (i.e., math and writing) or 25th (i.e., reading), low-performance ≤40th, average performance ≤60th, and optimal performance >60th. For all the parallel forms of each CBM described above, a composite score was created in order to classify students at risk in reading (IPAL), writing (IPAE), and math (IPAM). These composite scores were calculated by averaging unweighted standardized subtest scores[26], and have shown adequate indexes of classification accuracy (i.e., Area Under the Curve [AUC], sensitivity, and specificity), parallel form reliability, and criterion validity for the CBM IPAM[27,28] , IPAL[29], and IPAE. These results allowed the design of the ULL RtI Data System (WebRtI.ull.es), from Universidad de La Laguna. It enables schools to enter and monitor student scores from CBMs (i.e., IPAL, IPAE, and IPAM) (see **Figure 7**).

[Insert Please Figure 7 about here]

Teachers are commonly expected to collect, score, and use much of the associated student's performance data. For each basic skill, normative data and growth rate trajectories corresponding to the beginning-middle-end (i.e., fall, winter, and spring) of the school year are available (see **Figure 8,9**).

[Insert Please Figures 8-9 about here]

With these data, we are able to compare the rate of growth or progress of students who learn reading, writing, and math without any difficulty. This information is crucial to detect those students who are already at risk and monitoring their performance throughout the school year. Furthermore, these data allow educators to know if students are reaching a learning curve similar to the normative population or, on the contrary, the degree of deviation that would be determining if the risk is high, medium, or low. In this way, teachers can adapt and modify their strategies through the instructional materials that would be available once they receive online and face-to-face training.

Figure Legends

Figure 1. Indicators of Basic Early Reading Skills for kindergarten.

Figure 2. Indicators of Basic Early Reading Skills for first grade.

Figure 3. Indicators of Basic Early Reading Skills for second grade.

Figure 4. Indicators of Basic Early Writing Skills for Grades 1-3.

Figure 5. Indicators of Basic Early Math Skills for kindergarten.

Figure 6. Indicators of Basic Early Math Skills for Grades 1-3.

Figure 7. The ULL RtI Data System (http://webrti.ull.es).

Figure 8. IPAL, IPAM, and IPAE screening for each skill corresponding to the Beginning-Middle-End of the school year. *Note. LSF = letter-sound fluency; LNF = letter-name fluency; PA*

= phonemic awareness; RID =riddles; CPQ =concepts about print: questions; CPI = concepts about print: images NC = number comparison; MC = multi-digit computation; MN = missing number; SC = single-digit computation; PV = place value; A = allographs; DWAS = dictated words with arbitrary spelling; DWRS = dictated words with regular spelling; DNW =dictated nonsense words; DS = dictated sentences; Red = at risk; Yellow = low performance; Blue = average performance; Green = optimal performance.

Figure 9. Example of students' letter-sound fluency, number comparison, and dictated nonsense words progress-monitoring data charted in the line graph. Red = at risk; Yellow = low performance; Blue = average performance; Green = optimal performance; Black line= student's progress throughout the year.

DISCUSSION:

Over the last years, the Spanish government has been placing the main emphasis on a prevention system[30], allowing the design of new proposals orientated to the early detection and intervention of students at risk for LD. Nevertheless, there is a lack of screening and progress monitoring tools adapted to the Spanish curriculum and which can be used by Spanish-speaking teachers. The design and standardization of the CBMs above mentioned in the Canary Islands have permitted the pilot testing of the RtI Model as an alternative to the wait to fail model in the community[31,32].

Although CBMs have shown to be a reliable tool for screening purposes and progress monitoring, it is crucial to highlight the fact that these tools are not intended to replace diagnostic evaluation. While CBMs may provide additional information concerning basic learning skills achievement, when formalizing the identification of LD, it is necessary to employ evaluation tools designed and validated for this purpose.

However, when employing CBMs as screening tools, it is advisable to use multiple measures that evaluate all the components that support mastering reading, writing, or math. However, while most studies defend the use of multiple measures for universal screening, in the context of a school, the investment of resources and time required to assess the entire classroom individually should not be ignored. Future projects aim to explore the two-stage screening system proposed by some authors[33] and the creation of computerized tests that automatically perform the scoring.

DISCLOSURES:

The authors who are listed above certify there are no financial interests or other conflicts of interest regarding the present study.

ACKNOWLEDGEMENTS:

We gratefully acknowledge the support of the Spanish government through its *Plan Nacional I+D+i* (R+D+i National Research Plan of the Spanish Ministry of Economics and Competitiveness), project ref: PSI2015-65009-R, with first author as principal investigator. We also thank the ULLMedia team for their participation in the production of the video. Finally, we would like to express our very great appreciation to Sally Frances Burgues and Vijuni Ashok Melwani for lending us their voices to the recordings.

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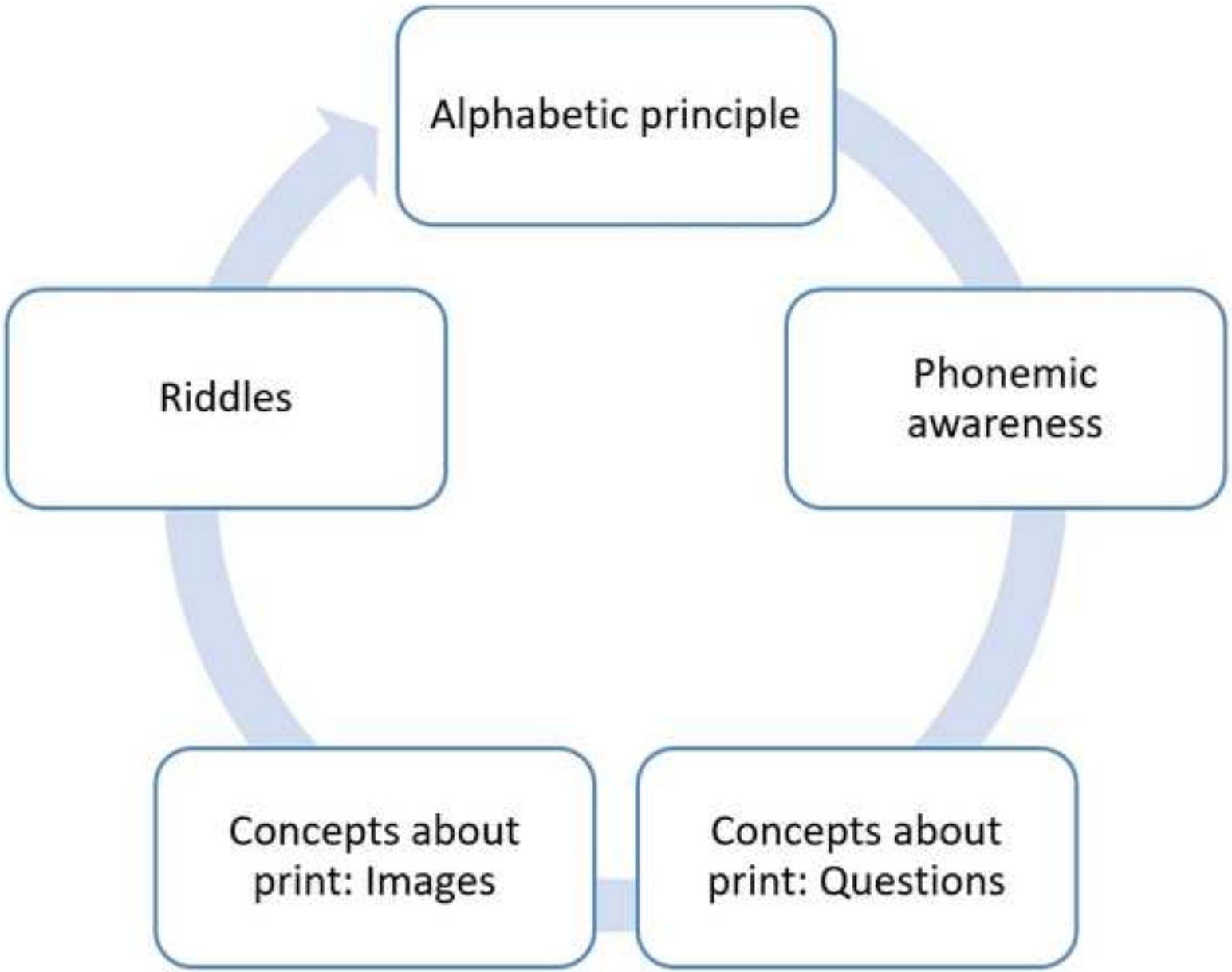
Figure



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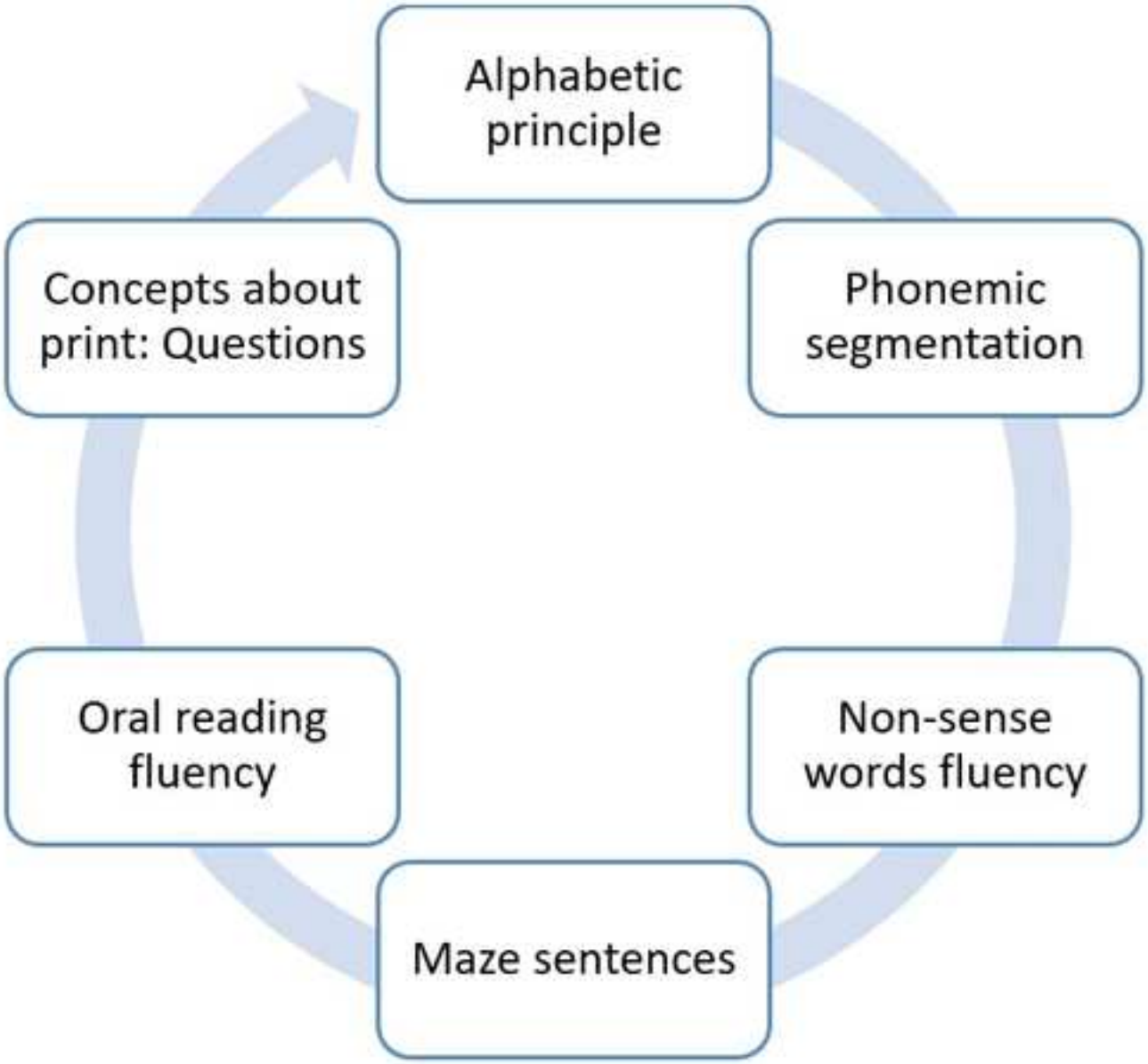

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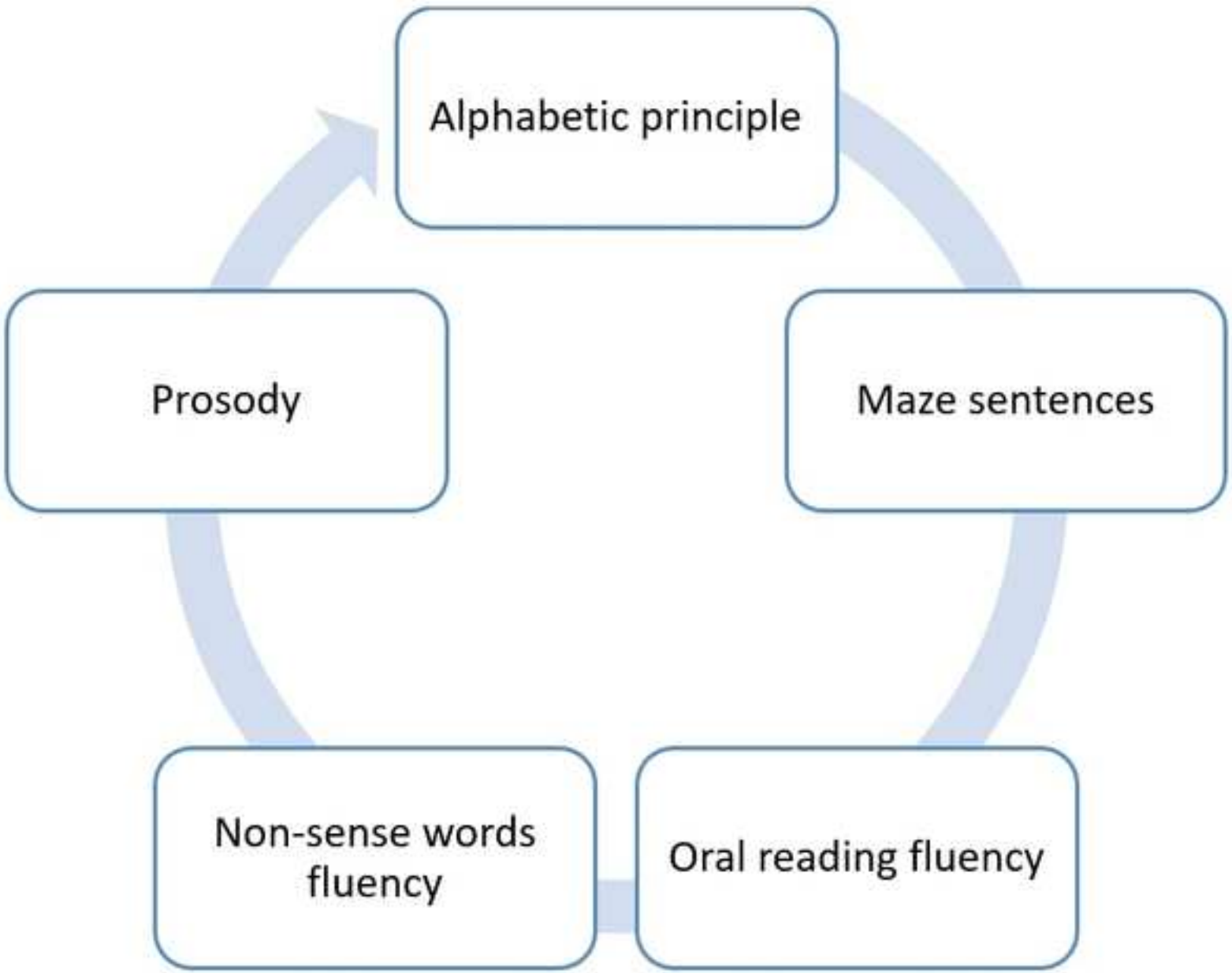

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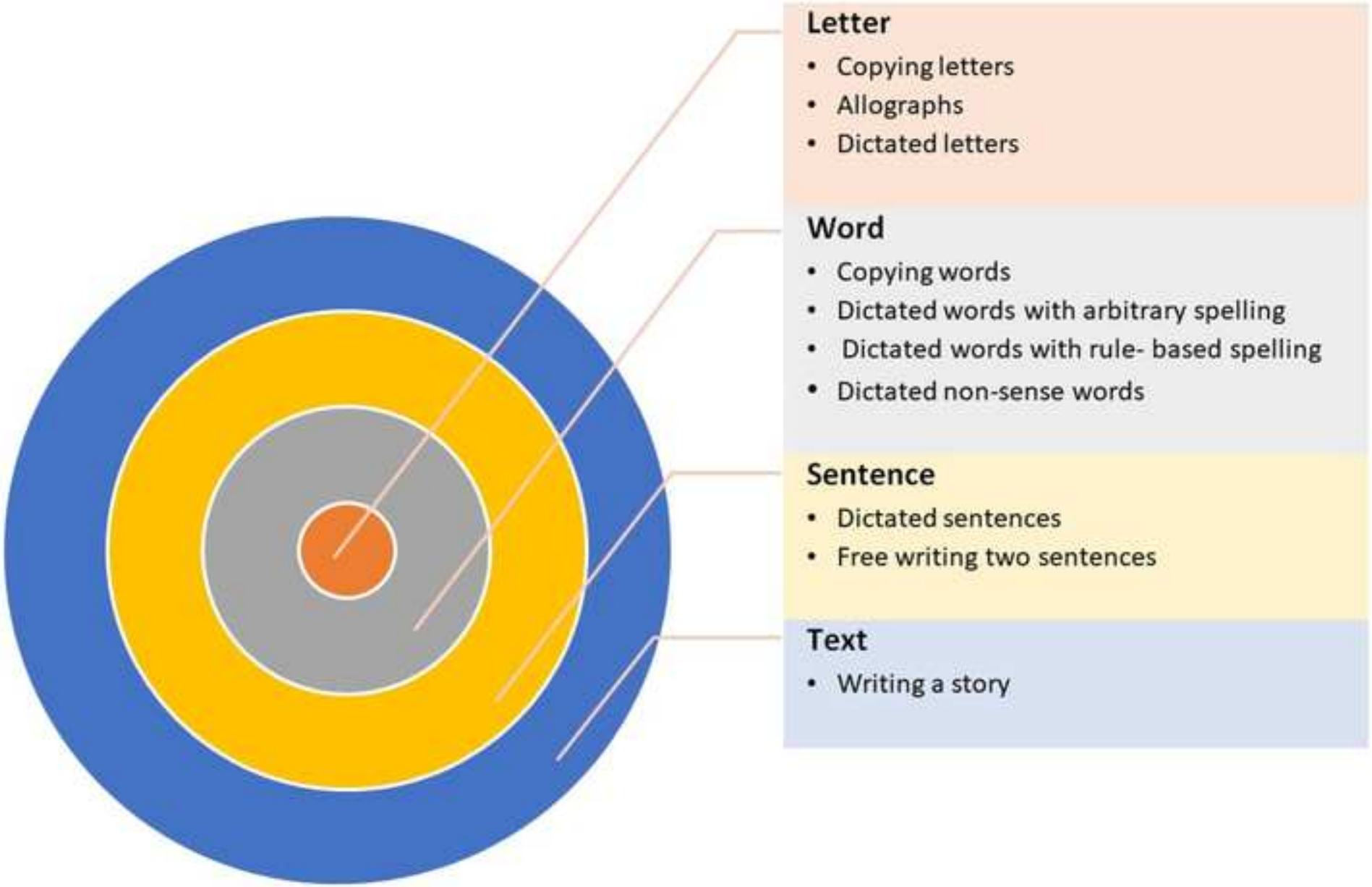

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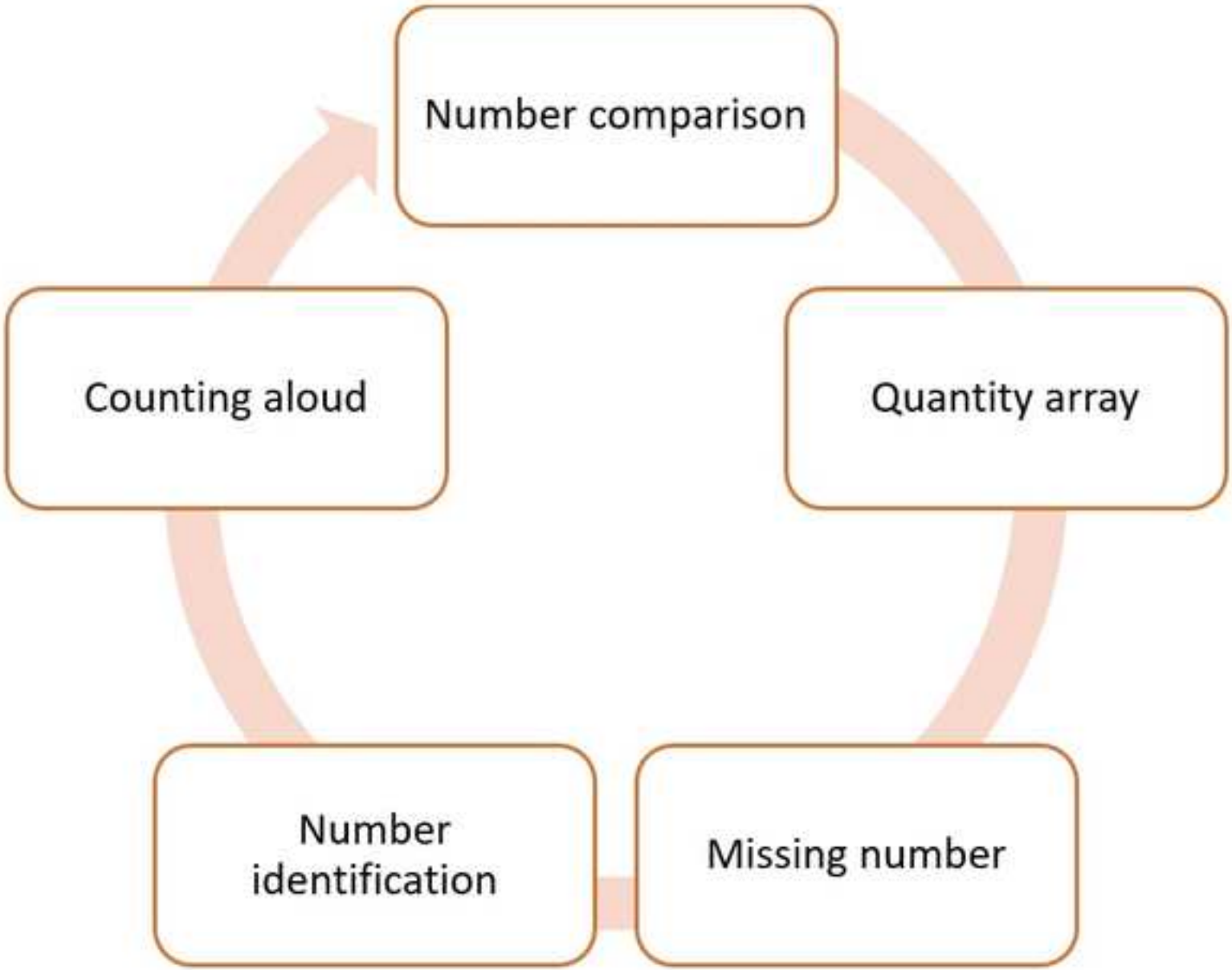

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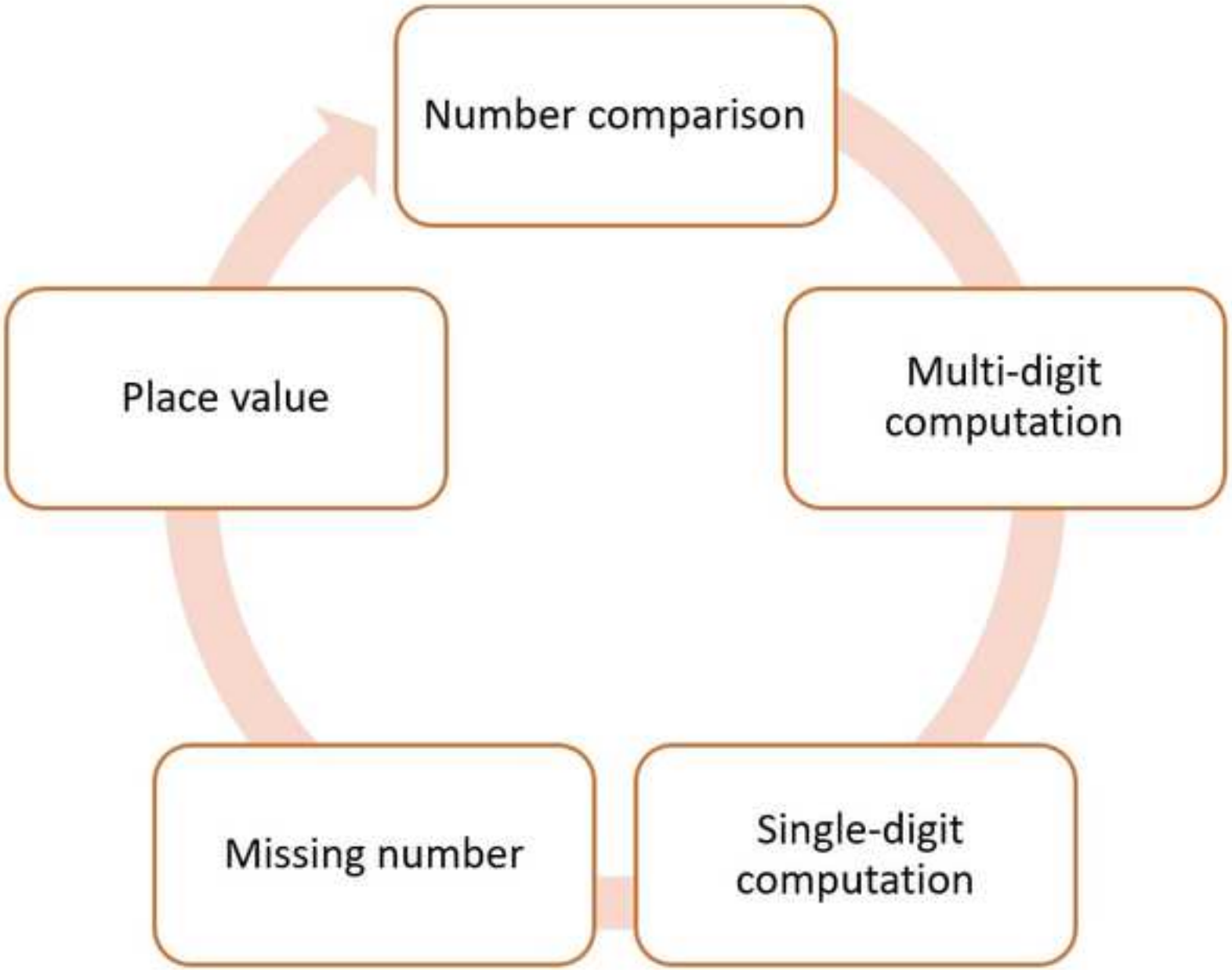

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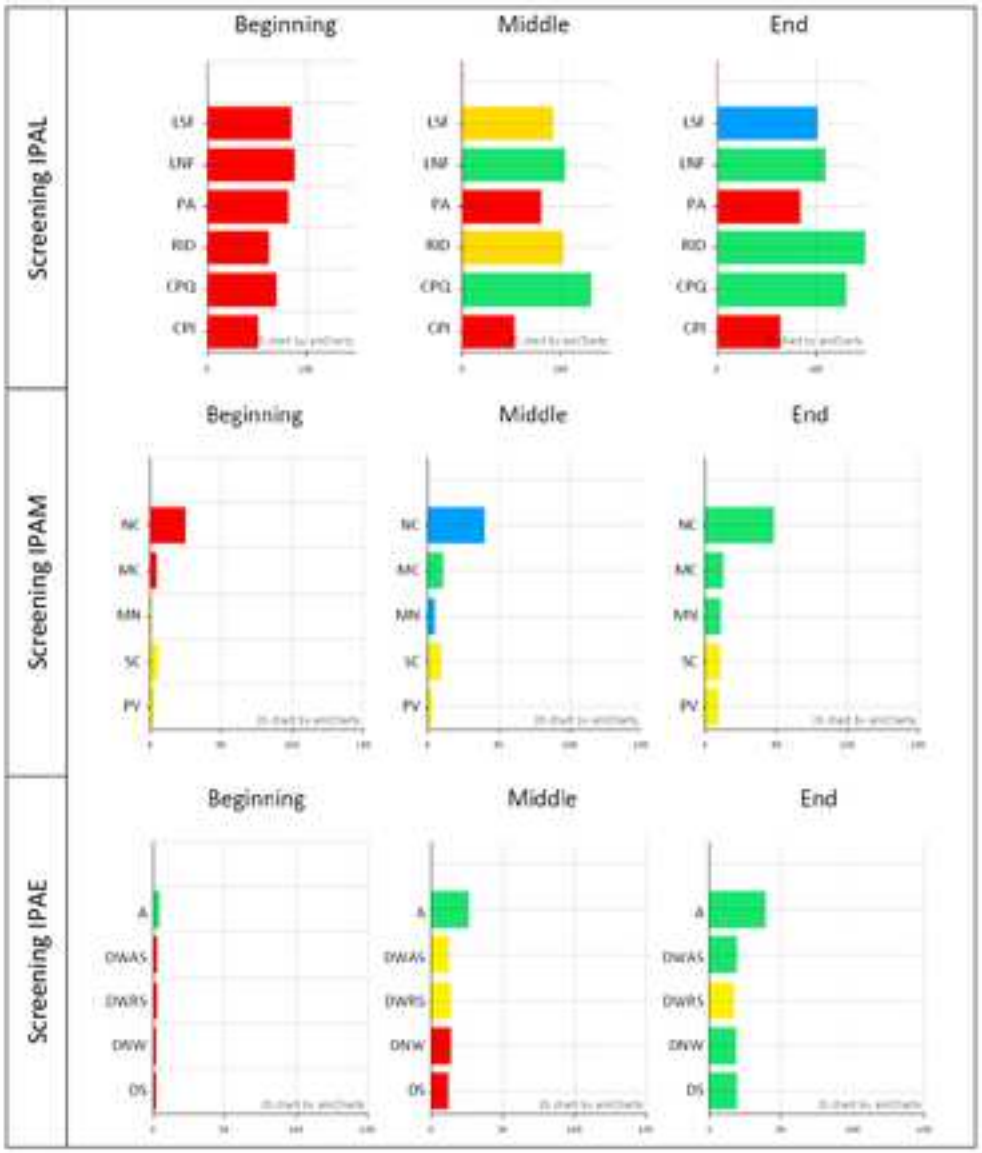

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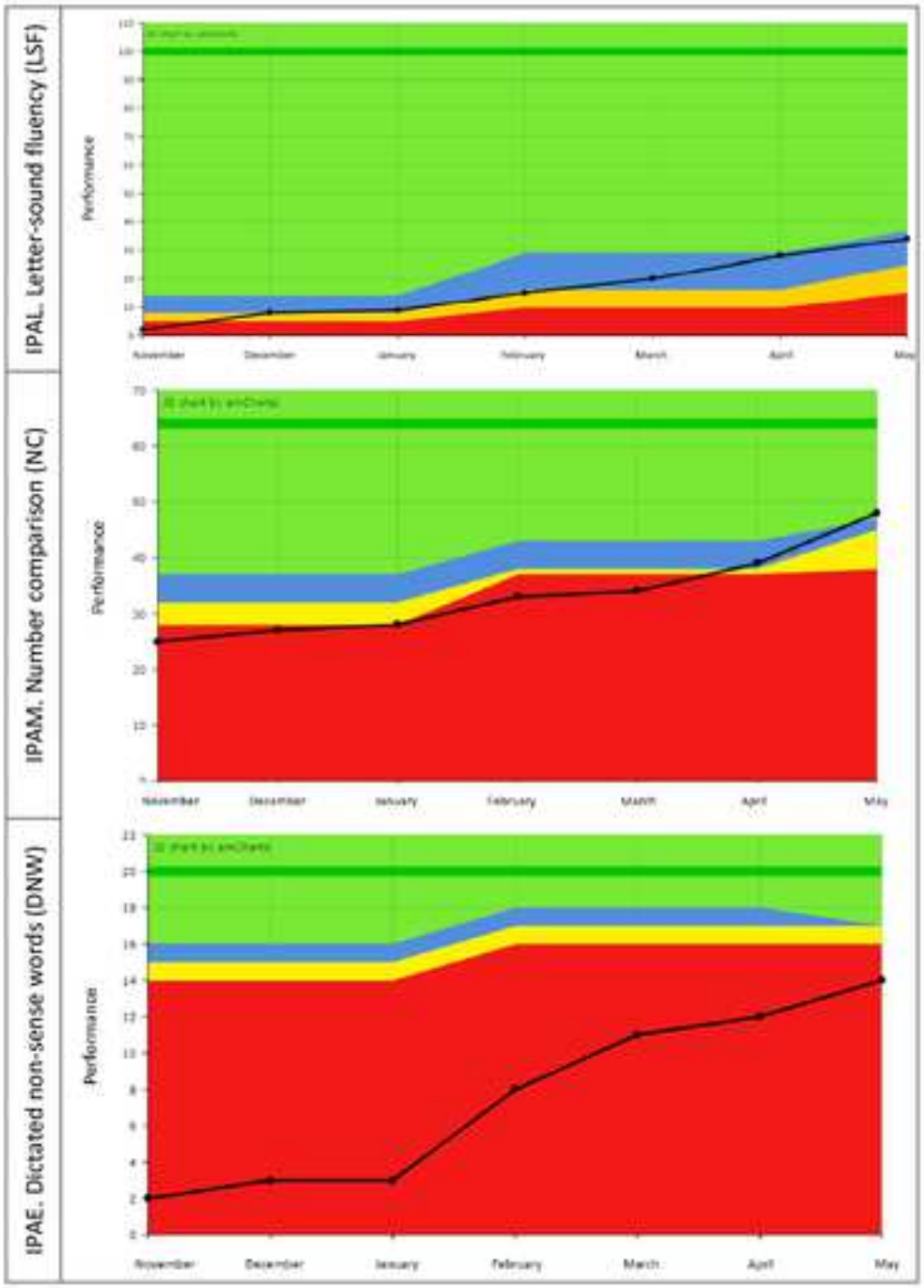

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25 mayo, 2020

Dr. Phillip Steindel

Editor

JOVE

Dear Dr. Steindel,

We appreciate the interest that the editors and reviewers have taken in our manuscript and we would like to thank the reviewers for the careful and constructive reviews for correction and modification. Based on the comments of the reviewers, we have made the suggested changes.

I am looking forward to hearing from you.

Yours sincerely,

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Editorial comments:

Changes to be made in the video:
• 02:11 The graphs that are shown here pop in and out suddenly. Consider fading them in over a half second to help soften its inclusion.

R=Corrected.

• 07:03 The cut after the boy says "nunca el sabo" could be faded out instead of the hard cut into the next chapter. As it is right now, it feels a little jarring and would benefit from a dissolve or fade. Alternatively hold on this shot a moment more before moving onto the next chapter. You should consider using a soft edit like a dissolve or fade to go into and out of all chapter text as well, but this one in particular stands out.

R= Corrected.

• 12:53 Jumbled narration here on the word, "Curriculum" It sounds like a glitch or editing mistake.

R= the “Curriculum” word has been deleted.