Marker Approach For Training Case Marker In Kannada Language

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Abstract

Language is a major tool for an individual to communicate. The phonological & morpho-syntactic components are involved in functions of language processing & executions. Case marker is one of the morpho-syntatic feature, which describes the abstract meaning of the grammatical components of nouns & verbs and in formation of meaningful sentences. Linguistically, case marker is one of the difficult features to comprehend its functions and use in language expressions. There are dearth of studies describing about any specific approach to train the case markers in persons with language disabilities, in regards the present article aimed to develop a comprehensive approach named MARKER approach to train the case markers. This approach planned and developed in improving the language functions & processing skills with respect to information processing model associated with various facilitative skills. It majorly focused on training the case marker morphological principles from concrete to abstract level and its utility in meaningful sentence formations. The present approaches developed are with respect to Kannada cultural & language background, and one can implement similar strategies when working in other languages.

Key words: Case marker; Morpho-syntax; Language processing; Language disabilities; Kannada language.

1. Introduction

Language is a system of phonological, morphological, semantic, syntactic & pragmatic rules, which could applied in an orderly manner for communicative purposes (Chomsky, 1957). Language development is a fascinating phenomenon. Language is a major milestone for a child to have some better communication skills, during the process a child would learn all the rules, principles & process the different language components. Children learn language automatically, though there could be variation in the pace of development, there is consensus about how language development takes place. In fact, many theories on language development have been proposed until date.

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Children would predominantly use non-verbal mode of communication during their first year of life. Slowly, by the end of the first year, children start using words and vocabulary starts expanding in the next one year to around 50-150 words. The gestures or non-verbal communication would eventually replace with verbal communication. Whereas, the grammatical feature development takes place between 18-24 months of age. The child would combine subject with verb or verb with object to frame two word utterances. Brown (1973) uses the term telegraphic speech to refer to this stage in language development, as the verbal output comprises of content words only. Around the age of 36-42 months, these phrases increased to sentences of different structures associated with inclusion of various morpho-syntactic features like tense, plurals, case markers and person-noun-gender (PNG) markers.

The case markers described as a formal device associated with a phrase that signals the abstract meaning of a grammatical category of nouns & verbs (Krishnamurty, 2003). The case markers are also been considered as the morphological features and it functions better at syntax level. The case markers assumed to develop by the age of 3-4 years and mastered by the age of 7-8 years (Kumarswamy, 2015 & 2022). It always associates with the relationship between the subject, object, and predicate. Case markers follow the principles of morphology and are language specific. Indian languages have 7 - 8 case markers. The utility of case markers in sentence formation is complex to understand, however it is note-worthy that these care markers used appropriately and effortlessly in spontaneous speech by most of the typical children.

Kannada is a south Indian language used predominantly in the state of Karnataka. It is one among the Dravidian language rich in morpho-syntactic & syllabic features. As far as case markers of this language is concerned, there are eight case markers in this language. The case markers are nominative - /u/ (grammatical case used when a noun or pronoun is the subject of the verb), accusative - /ənnu/ (used to mark the direct object of a transitive verb), instrumental - /ɪnda/ (used to mark the movement 'from' something and/or cause), dative - /gɛ/ (refers to the object that receives a direct impact on the verb) , ablative - /dɛsɛjɪndə/ (applied to a noun, pronoun or an adjective) , genitive - /a/ (usually a suffix added for possession of noun) , locative - /əllɪ/ (indicates the location) and vocative - /eː/ (a case maker that directly addresses the noun). These case markers are used either in the form of suffixes or post-positions. The instrumental & ablative most often in Kannada language provides same meaning.

Most of the children comprehend & execute these markers via implicit & explicit learning strategies, but still requires, a formal training to learn these case markers as it includes a complex morphological feature principles and its hard process for the children with language disorders to learn to their capacity. Among communication disorders, studies have shown that the case marker majorly affected and considered as main characteristics in differential diagnosing the language disorders especially in cases of Developmental Language Disorders & Specific Language/ Learning Impairments (Sengottuvel, 2013; Tiwari, 2017). A handful studies are also available in children with learning disability (Nag, 2012), Down syndrome (Laws & Bishop, 2003; Perovic, 2006), Hearing Impairment (Medwetsky, 2011) & other language disorders (Chakravarthi, 2012) revealing a major difficulty in comprehending the morphological features. There is scarcity in researches, in development of a therapy model for training the morpho-syntactic skills (specially the case markers) for persons with language disabilities and it is a challenge for the clinician to train & make understand the language principles & process to the client, to bring an effective output. The current study aims in proposing a generic & comprehensive method for teaching case markers in Kannada language in common to any aged & type of language disorders.

2. Methodology

The proposed method would to teach case markers is termed as MARKER approach, it highlights on dual modeling of language and cognitive skills improvement. This approach is an amalgamation of bottom-up and top-down model approach, which focuses between meta-linguistic and linguistic skills. The focused skills in MARKER approach includes, Metalinguistic (M), Auditory closure (A), Rainbow coloring (R), Key featuring (K), Expansion, extension & exploring (E) and finally the Rooting (R) skills. Each skill would work with various phases or steps from simple to complex training activities. Activities are concentrated on the language principles and its process involved in communication.

MARKER APPROACH
(Bottom-Up & Top-Down - Dual Modeling)
M – Metalinguistic awareness skills
A – Auditory skills
R – Rainbow coloring skills
K – Key featuring skills
E – Expanding, extending & exploring skills
R – Rooting skills

2.1. M - Metalinguistic awareness skills

Higher skills of linguistics combined with cognitive strategies would help the client to create, generalize, monitor and to transfer the learnt skills. Meta-linguistic awareness is an individual's ability to focus attention on language as an object in and of itself, to reflect upon language, and to evaluate it. It is consider as a part of meta-cognition, which provides a distinct area of neural spacing ability in each of the individuals' brain to learn the language processing skills. Thinking, reasoning, problem solving, judgment, inference, recognition & recall and working memory plays a major role in improving the abstract language and cognitive processing skills. Working on these skills under the process of case markers principles on following suitable treatment methodology, facilitates the individuals to build an appropriate grammatical & meaningful syntax variants under functional communication (Chermak, 2014; Zwitserlood, 2015). Below are few activities for the clinician that could proceed in training the language process in implementation of cognitive-linguistic skills.

2.1.1. Activity

Clinician could make the client to see to the picture and to read the sentences or clinician could read for the client. Following clinician could ask the client to judge whether the sentences is meaningful or not, and to verify if the grammatical formations are right or wrong (they have to judge if the sentence is matching with the picture or not). If client response is of any type yes/no, later could ask the client to justify & inference his/her responses by providing explanations. Addition to that, particularly if client says 'No', clinician could ask the client to think where it has gone wrong, why it has gone wrong and, what could the possible corrections, and finally the clinician could ask the client to come-up with similar type of sentence examples that had come across in client's day to day communication. To make the client's responses consistent and to learn the morphemic principle at functional level, the skills could work in various phases. One example depicted below; similarly, clinician could work with the other case markers of respective languages.

Fig. 1: Activities to improve metalinguistic skills.

2.1.2. Phase 1:

Provide this picture (Figure 1), as a stimulus associated with written / verbal utterance of sentences.
Stimulus: S1: /huɖugana gɪɖa niːru haːkuttɪddaːnɛ/
S2: /huɖuga gɪɖədəllɪ niːru haːkuttɪddaːnɛ/
S3: /huɖuga gɪɖəkkɛ niːrɪnɪnda haːkuttɪddaːnɛ/

Clinician could ask the client to think, judge & reason out are the sentences provided are meaningful are not and to verify those sentences are matching with the picture or not. If not so, then clinician could ask the child to identify the error in each of the sentences and to come-up with meaningful sentences.

Note: In this phase, the selection of error stimulus could be anywhere in the grammatical category and no correct sentences should be included.

2.1.3. Phase 2:

Clinician could provide 3-4 sentences oddity and could ask the client to identify the correct sentence out of them and to infer, justify & reason out his/her responses. In this phase, the selection of stimulus should target only on the case markers not on any other grammatical categories.
Example (ex):   1: /huɖuga gɪɖədadɛsɛjĩnda niːru haːkuttɪddaːnɛ/
2: /huɖuga gɪɖəkkɛ niːru haːkuttɪddaːnɛ/
3: /huɖuga gɪɖədəllɪ niːru haːkuttɪddaːnɛ/
4: /huɖuga gɪɖədə niːru haːkuttɪddaːnɛ /

Client should be able to select this /huɖuga gɪɖəkkɛ niːru haːkuttɪddaːnɛ/ as correct sentence, as the morphemic word (case marked) /gɪɖəkkɛ/ matches and which gives appropriate grammatical & meaningful context to the sentence compared to other case marked morpho-syntax.

2.1.4. Phase 3:

In this phase, clinician could take a single error stimulus and could ask to judge the correctness.
Ex: /huɖuga gɪɖədɪnda niːru haːkuttɪddaːnɛ/

If client finds it difficult to identify the error, then clinician could provide some clue or could directly ask the client to provide the appropriate marker for the root word /gida/. Therefore, client could think, reason out and could match with picture. Once the client comes with correct responses, clinician could ask him/her to give similar example of case marked morphemic word used in daily life conversations.

2.2. A - Auditory skills

Auditory ability is also important for an active listener & communicator. Auditory identification, discrimination, closure, comprehension & feedback majorly focus on the active listening processing skills (Agnew, 2004; Murphy, 2013; Binos, 2021). An activity on closure enhances the discrimination, choosing, preferring, attention & concentration skills. These skills are most need for an individual to develop language components. Since there are 7-8 case markers are present in most of the Indian languages and their meanings are distinct from each other, individual should be attentive in listening & communicate them appropriately. In regards, the auditory skills could be use in training the case markers at reading & listening comprehension skills along with feedback strategies.

2.2.1. Discrimination, identification & comprehension skills

Clinician could implement the process of discrimination & identification under reading and listening activities that improve the client's attentive listening skills and would improve central language process skills.

Reading task: Clinician could provide simple written stories or passages for reading. Later clinician could ask the client to answer certain measures for example; to identify the number of morphemic words; to identify the frequency of occurrence of various types of case markers; to discriminate the meaning of two minimal pair sentences; to explain the meaning of each sentences; and to summarize the story/ passages read to/by the client.

Listening task: Clinician could provide two different sentences (ex: /əruɳa kaɪjɪnda ganʈɛjannu kəʈʈɪda/ vs /əruɳa kaɪjɪgɛ ganʈɛjannu kəʈʈɪda/) with change in case marker and could be ask the client to discriminate them with respect to meaning, type of marker & root word. Clinician could also narrate a small story, or read a simple passage, or tell simple sentences and could ask the client, to name few case marked morphemic words that he heard; to provide a similar example of that case marker, and to summarize the story/ passage.

2.2.2. Feedback skills

Clinician could select any one picture card (ex: market) or discuss about any small event (ex: birthday party) or about daily routine (ex: brushing) with client. During this task, clinician could record the language samples of the client and play back the same to the client at the end of the activity, later can be asked the client to listen attentively and to point out the errors in his/her utterance and to correctly rephrase the errors. Clinician could include both the strategies of real time and delayed auditory feedback, correction strategies that are having equal evidences in therapy out-come. This self-feedback skill would help the individual to identify the errors, rephrase the utterance and to maintain the appropriate output.

2.2.3. Auditory closure skills

Clinician could prepare a set of sentences in reference to client's repertoire, and could leave some blanks or add on errors in these sentences that are target as stimulus. Along with this, sentences could be provide with few closures in the bracket, and could ask the client to select the appropriate case markers to complete the sentence meaningfully.

Activity 1: Clinician could give two sentences as closures and could ask the client to match it with the picture provided as shown in the Figure 2.

Fig. 2: Activities to improve auditory closure skills

C1: /marəkkɛ ujjaːlɛjannu kəʈʈɪddaːrɛ/
C2: /marədɪnda ujjaːlɛjannu kəʈʈɪddaːrɛ/

Activity 2: Could ask the client to read the complete sentences or clinician could read for the client, and later client could ask to fill the gaps with appropriate markers provided in closures.

Ex: /mara ___ (/kɛ/, /dɪnda/, /dəllɪ/) ujjaːlɛjannu kəʈʈɪddaːrɛ/ - syllabic closures
_____ (/marəkkɛ, marədɪnda, marədəllɪ/) ujjaːlɛjannu kəʈʈɪddaːrɛ/ - semantic closures

2.3. R - Rainbow coloring skills (Color coding)

Color-coding is one of the cognitive aspects, which facilitate in matching, interpreting and processing any of the stimuli precisely. Combination of cognitive-linguistic skills could improve the individual's memory, selective attention, naming and abstract cognitive skills (Ebert, 2014; Meulen, 2021; Stolf, 2021). In focus to that, rainbow-coloring technique was develop to work on morphing concepts where the rainbow colors are code to each case marker of the respective languages. As each rainbow color is distinct in their appearance, each case marker is also distinct in terms of its appearance & meaning. Hence, these coding used as a cue for the precise selection of case marker in morphing and to use in sentences correctly. Note: Since in Kannada language the instrumental & ablative case markers are, considered similar and providing equal meaning, a single color-coding is consider in this MARKER approach.

Initially, clinician could improve the rainbow color concepts to an individual on regular training. Once client had learnt the vocabulary of rainbow colors, later could create the awareness of color coding skills. Clinician could code the each type of case markers with a rainbow color as a reference and could create awareness to the client, on how to use these markers at morphing process and to use in right place in sentence formation. In addition, certain matching, interpreting and processing activities could carried out to improve the practice of use of case markers. This activity could improve on syntax drilling, from phrases to complex clause level of sentences.

<div align="center">

VIBGYOR – u / ənnu / ɪnda / gɛ / a / əllɪ / eː

</div>

2.3.1. Matching activity:

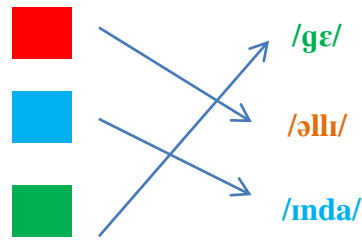Clinician could ask the client to match the colors with the respective case markers as shown in the Figure 3(a).

Fig. 3(a): Activities to improve rainbow color coding skills

2.3.2. Interpreting activity:

Clinician could ask the client to interpret which color or the marker best suits for the root-word. This could be work at morphemic level or at sentence level (Figure 3(b) & 3(c)).

Ex:	Root-word	-	**/pəʈa/**
	Morpheme 1	-	**/pəʈakkɛ/**
	Morpheme 2	-	**/pəʈaʋeː/**

2.3.3. Processing activity:

Clinician could ask the client to use appropriate case marker in the sentence given, provided him/her with color-coded clues to increase the consistent responses.

Ex: Dative (**Green**)
/ raːma ʧʃitrakkɛ bənna həʧʃʃidənu /

2.3.4. Combination of matching, interpreting & processing activity:

When clinician wants the client to understand the morphing concept and to use the appropriate case markers easily, clinician could give colors to morphs/ markers or could give the color to root word/ picture itself as a cue (Figure 3(b) & 3(c)). This would increases the consistency in client responses. Initially clinician could ask the client to name the picture (ex: root word - /pəʈa/), then can be asked the client to look to the color of the picture and to add the appropriate case marker to it (ex: green: /kɛ/ - /pəʈəkkɛ/). Once client learnt the concept of morphing one case marker, then clinician could work with other markers with respective color coded cues. These codes could be provide directly to the picture or could use it as a filler as shown in the Figure 3(c). Following this client could be ask to frame a phrase or a sentence from the obtained morphemic word (ex: /pəʈəkke baːla kəʈʈıdaːrɛ/).
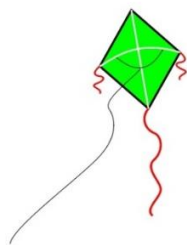
Root word:	/pəʈa/	/pəʈa/
Morphemic word:	/pəʈəkkɛ/	/pəʈədəllı/
Sentence frame:	/pəʈəkke baːla kəʈʈıdaːrɛ/	/pəʈədəllı ɛrəɖu gʊʧʃʃugəliʋɛ/

Fig 3(b): Activities to improve rainbow color coding skills

Fig 3(c): Activities to improve rainbow color coding skills

2.4. K - Key featuring skills (PicSym)

AAC is one of the ways to improve the communication skills. Even typical individuals are fond of using certain gestures, signs, codes, body language for better outcome of speech act. Thus, it is important even to work these non-verbal skills in therapy where it facilitates the individual to communicate meaningfully. Most of the studies had highlight, that there is an increased effect in language skills on implementation of both aided & unaided AAC strategies in language therapy (Stephenson, 2009; Leech, 2011; Holyfield, 2021). The present approach focused on the use of Picture symbols (PicSym) to explain the meaning of each case marker by featuring with certain key markers of line drawings, icons and pointers. Since certain case markers emphasize about the locations, directions & identities, there is a need of explaining these processes using line drawings / PicSyms.

2.4.1. Activity

Clinician could explain the process of how client could understand the concept of case markers on using the PicSyms. For example locations (əllɪ / ɪnda) are explained by drawing lines as outside / inside directions, and for identities (gɛ / a / ənnu / eː) drawing line directions addition to central dots, boxes, pointers & encircled lines as shown in the Table 1 & 2. These line drawings can highlighted on pictures/ icons/ orthographies to comprehend faster. Using the below PicSyms chart (Table 1 & 2), clinician could sensitize the client about each case marker & its use in sentence formation as shown in Figure 4. Once the client has able to follow the PicSyms, then clinician could ask the client to use it as a facilitator and to come with appropriate meaningful word & sentences.

Table 1. Case markers PicSym chart on a person

Root word	/raːma/	/raːma/	/raːma/	/raːma/	/raːma/	/raːma/	/raːma/
PicSyms							

Morphs/Markers	/u/	/ənnu/	/ɪnda/	/gɛ/	/a/	/əllɪ/	/e:/
Symbols	▬	▭	↱	↵	◉	↓	↻
Morphomic word	/ra:mənu/	/ra:mənənnu/	/ra:məninda/	/ra:mənigɛ/	/ra:məna/	/ra:mənəllɪ/	/ra:məne:/

Table 2: Case markers PicSym chart on an object

Root word	/mara/	/mara/	/mara/	/mara/	/mara/	/mara/	/mara/
Picsyms							
Morphs/Markers	/u/	/ənnu/	/ɪnda/	/gɛ/	/a/	/əllɪ/	/e:/
Symbols	▬	▭	↱	↵	◉	↓	↻
Morphomic word	/maraʋu/	/maraʋənnu/	/maradinda/	/marakkɛ/	/marada/	/maradəllɪ/	/maraʋe:/

Clinician could provide an individual picture card of the target word of a sentence that need to work on in therapy. Following this, could ask the client to name the picture along with clue provided in line drawing and finally could ask the child to come up with a meaningful sentence as shown in Figure 4.

Ex. 1:
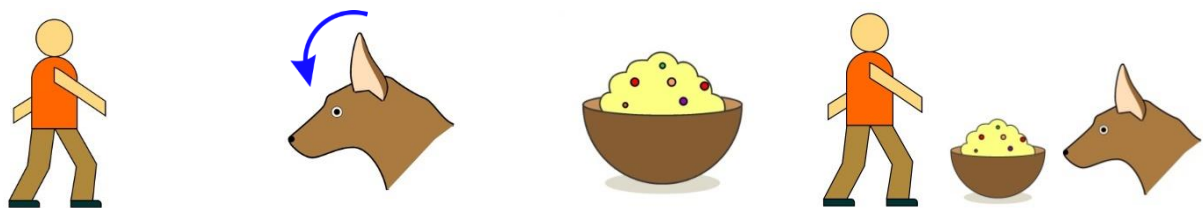
Words: /sure:ʃa/   /na:jɪgɛ/   /u:ʈa/   /ha:kida/
Sentence: /sure:ʃa na:jɪgɛ u:ʈa ha:kida/
Ex. 2:

/pəkʂɪ/   /gu:ɖɪnəllɪ/   /ʋa:sisuttidɛ/
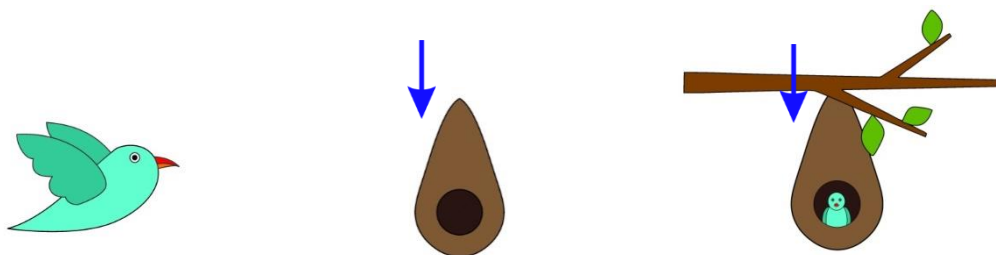
Root word   Morphemic principles applied   Action verb

Sentence: /pəkʂɪ ɡuːɖɪnəllɪ ʋaːsisuttidɛ/

Fig. 4: Activities to improve morphing skills at sentence level using picsyms

In this key feature skill, clinician must focus both on markers (morphs) and on the sentence structures (phrases/clauses) associated with the use of picture cards / PicSym chart along with orthographic cues, which improve the stimulability & responses, of an individual.

2.5. E - Expanding, extending & exploring skills (Tree branching)

Expansion and Extension are two major components to increase/improve the mean length of utterances of an individual. Expansion focus on increasing the number of morphemic utterances whereas extension focuses on the refining grammatical structure of the sentences. With these two components individual starts exploring in formation of creative, flexible & variety of sentence structures. Hence, it is important to work these components in sentence formations especially in the use of case markers, as it provides more clarification to the meaningful sentences and increase the discourse & conversational skills (Wong, 2012).

2.5.1. Activity

Clinician could select one of the case markers and start explaining the meaning of it at morphemic, word & syntax levels. Once the client had learnt the meaning & process of using one case marker, later the skill could be extend to other markers to train at various sentence structuring & formation level. This approach could be work at three phases, Phase 1: concentrated on training the use of markers on sentence grammatical features; Phase 2: concentrated on training the morphemic features and Phase 3: concentrated on training the morpho-syntactic features. Each of these phases worked on formation of subject, object & verb (SOV) components of sentence structures, where Phase 1 focused more on training the S and V with constant O component, Phase 2 focused more on training the O and V with constant S component and Phase 3 provided equal weightage on all the SOV components of sentence structures. In each phase other morphs like tense markers, persons, gender, etc… could also be included for exploring the sentences structures & formations (Figure 5 (a)).

For example; Clinician could take one case marker /inda/, and could create awareness on the meaning of this morph i.e "from that place/ person/ thing" later to use this in a word i.e /kaːrinda/, /raːmaninda/, etc., to use the same words in preparing a meaningful sentences i.e /siːta kaːrinda bəndəlu/ or /raːmaninda hənnu pəɖɛdɛ/. Once, one example is taught to the client about how to use the morph in creating various sentence formation, later could be use as reference/ base marker and could start working other markers too, as shown in the Fig. 5 (a), (b) & (c). Follow the phases appropriately and work with all possible SOV sentence structures.

2.5.2. Phase1: Grammatical features

Here the object (O) would considered as constant, whereas the other components of sentences structures subject (S) and verb (V) would targeted in framing sentences, which are also varied with respect to various grammatical components like gender, persons, tenses, etc...

Initially clinician could teach the use of case marker on sentence formation with an example and could ask the client to use various other words provided in the subject & verb column to come-up with meaningful sentences (Figure 5 (a)).

Ex: /ra:ma ʃa:lɛgɛ ho:dənu/
/aʋəru ʃa:lɛgɛ ho:dənu/

Subject	Object	Past	Present	Future
/ra:ma/		/ho:dənu/	/ho:guttidda:nɛ/	/ho:guʋənu/
/si:ta/		/ho:dəɭu/	/ho:guttidda:ɭɛ/	/ho:guʋəɭu/
/əʋənu/		/ho:dənu/	/ho:guttidda:nɛ/	/ho:guʋənu/
/əʋəɭu/	/ʃa:lɛgɛ/	/ho:dəɭu/	/ho:guttidda:ɭɛ/	/ho:guʋəɭu/
/əʋəru/		/ho:dəru/	/ho:guttidda:rɛ/	/ho:guʋəru/
/ədu/		/ho:jitu/	/ho:guttidɛ/	/ho:guʋudu/
/na:nu/		/ho:gidɛ/	/ho:guttidde:nɛ/	/ho:guʋɛ/
/ni:ʋu/		/ho:giddir/	/ho:guttiddirɪ/	/ho:guʋirɪ/

Fig. 5(a): Activities to improve expansion and extension skills at morpho-syntactic level.

2.5.3. Phase 2: Morphemic features

Here the object (S) would considered as constant, whereas the other components of sentences structures subject (O) and verb (V) would targeted in framing sentences, which are also varied with respect to various grammatical components.

Initially clinician could teach the use of case marker on sentence formation with an example and could ask the client to use various other words provided in the object & verb column to come up with meaningful sentences (Figure 5(b)).
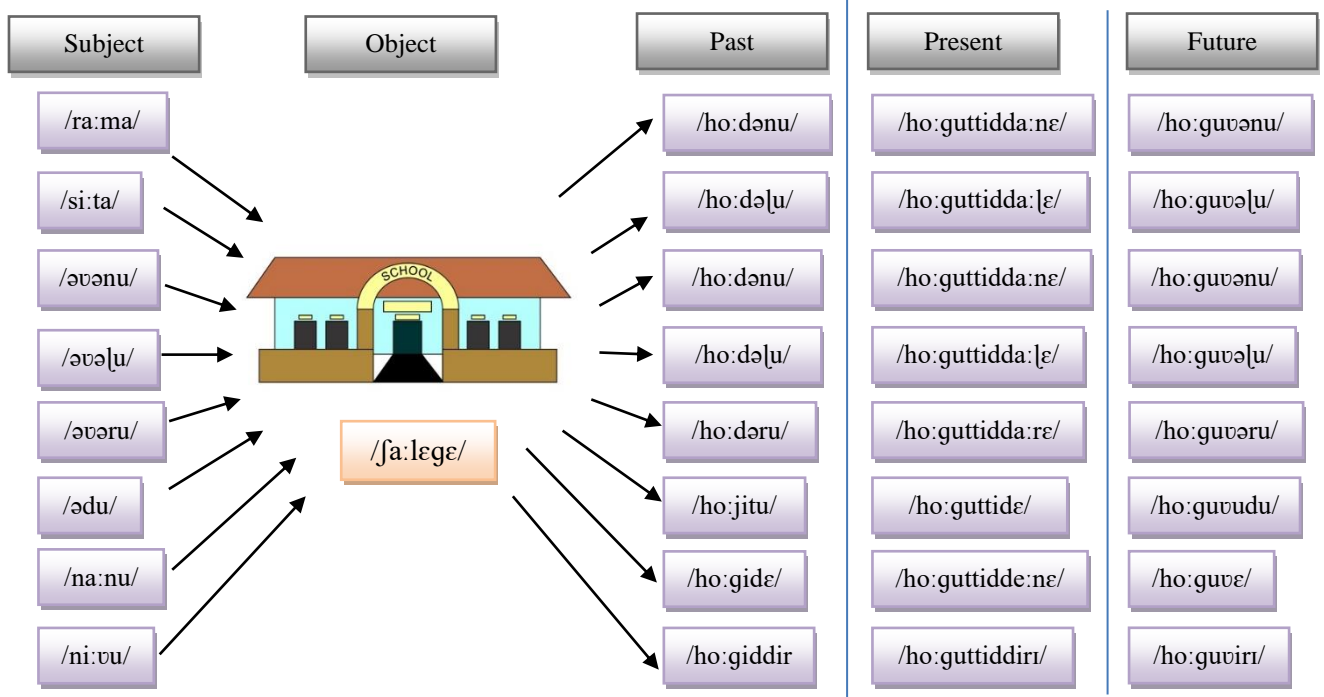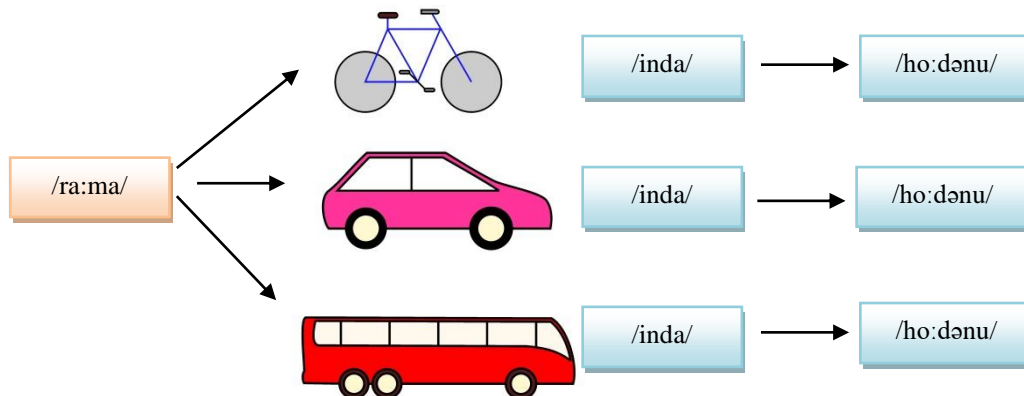
Ex: /ra:ma bəssinda ho:dənu/
/ra:ma mi:nənnu ni:rinəllɪ no:ɖidənu/

		/inda/ → /ho:dənu/
/ra:ma/		/inda/ → /ho:dənu/
		/inda/ → /ho:dənu/

Ex. 1:

/ra:ma/ → 🚲 /ninda/ → 🏫 /gɛ → /ho:dənu/

Ex. 2:

/ra:ma/ → 🐟 /nənnu/ → 🌊 /nəllɪ/ → /no:ɖidənu/

Ex. 3:

/dəllɪ/ → 🪁 /ʊu/ → /ha:rutɪdɛ/
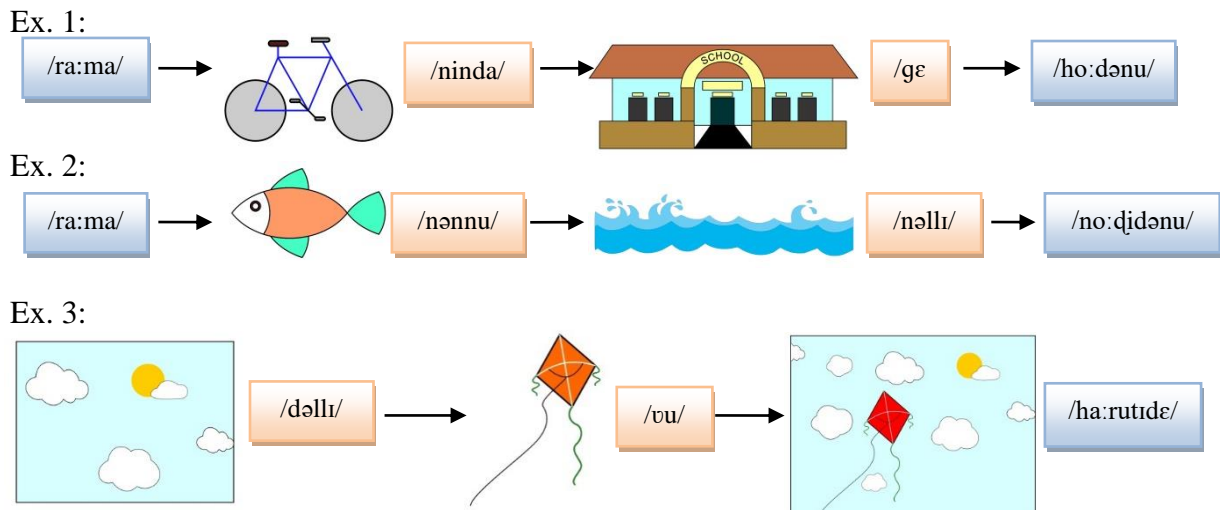
Fig. 5 (b): Activities to improve expansion and extension skills at morpho-syntactic level.

2.5.4. Phase 3: Morpho-syntatic features

In this phase, equal importance given to all the components SOV of sentence structure. It is the abstract level, where the learnt concepts of sentence formations from the phases 1 & 2 would explored to various types of the sentences.

Clinician could provide few wordings, picture cards as shown in Figure 5(c) and could ask the client to organize them in an appropriate sentence structure and to frame a meaningful sentence. In between this, the root-word and the case marker should be provided separately, so that client could learn the use of appropriate case marker morphing principle as per to the provided stimulus background.

/jəllɪ/

/bərutɪdɛ/

/hɪɖɪdu/

/dʒo:ra:gɪ/   /jənnu/   /ədəkkɛ/   /nəɖɛjuttɪdda:nɛ

/dʒo:ra:gɪ məɭɛ bərutɪdɛ ədəkkɛ huɖugə tʃətrɪjənnu hɪɖɪdu rəstɛjəllɪ nəɖɛjuttɪdda:nɛ/

Fig 5 (c): Activities to improve expansion and extension skills at morpho-syntactic level.

Clinician could use picture cards or the orthographical cards in between the sentence formation, as a cue or as a stimulus card and try to generalize the basic learnt process to abstract level as shown at end of the Figure 5(c). In Phase 3, clinician could work in all possible length of sentence utterances and even at transitive, intransitives, tenses, comparatives, declaratives, imperatives and exclamatory type of sentences. In addition, clinician could select a busy picture (ex: market, zoo, etc.) and can be asked the client to describe about the picture along with conversation, in order to increase the generalization skills.

2.6. R - Rooting skills (Tree rooting)

Most of the individual fail to understand the concept of morphs, morpheme and the morphemic principles of a particular language. Individuals find it difficult to transit vice versa between morphs & morphemes and to use the morphemic word in syntax appropriately. Case markers are the morph, works on the principle of inflection morphemes and often used in syntax formation. One must focus on training the case markers associated with language principles (Goodwin, 2010; Tomas, 2015; Murphy, 2020). Hence, this step highlighted the use of root-word that need to be train in morphing with different markers, at phonological & morphemic level than just training semantic vocabulary.
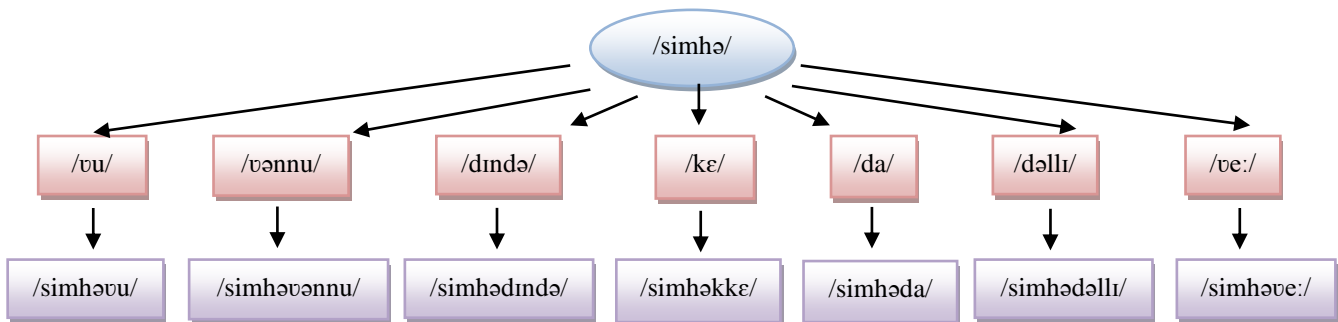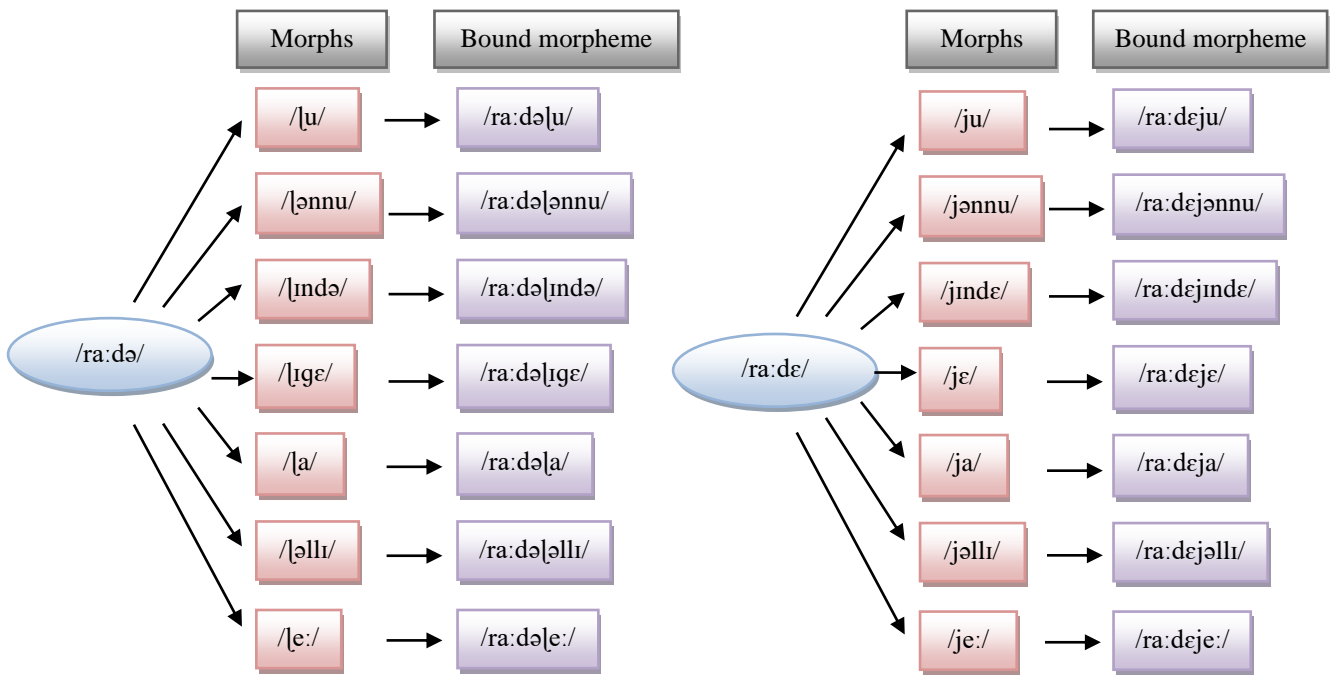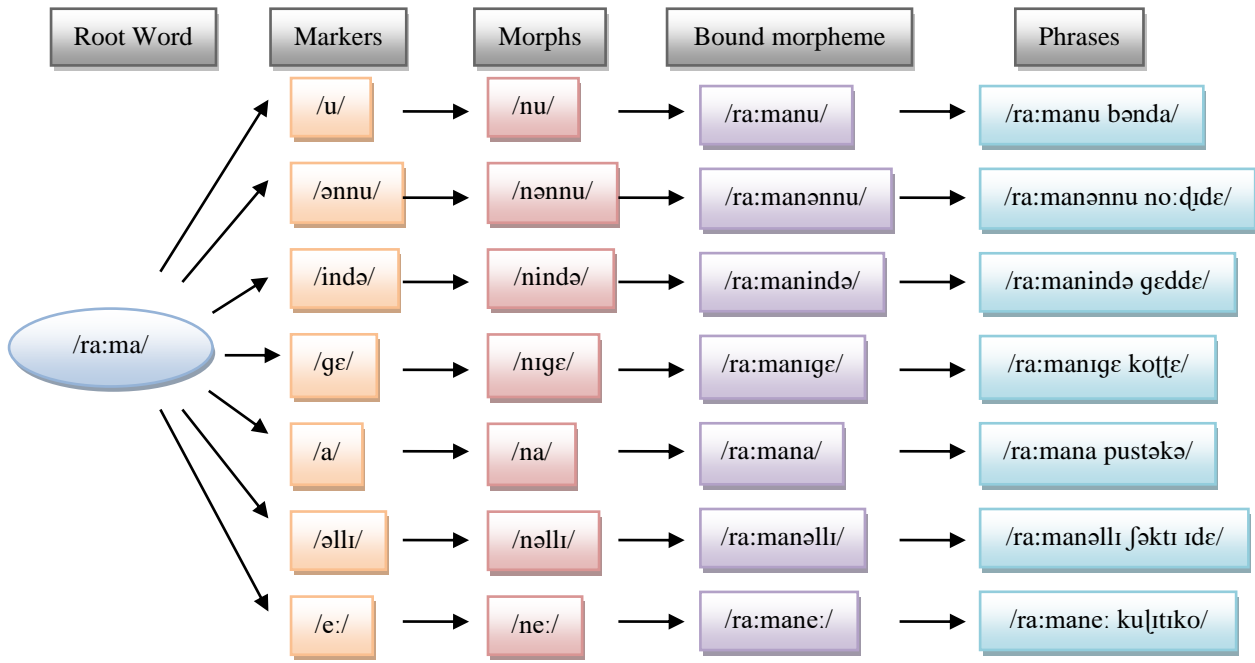
To work on these processing skills, one could select a root-word (noun) - free morph and could ask the client to add those markers to the root word to make it a meaningful morpheme. Clinician could model the client on how to morph a root word transiting to morphemic word, with an example. Once the client had frame a bound morpheme, could create awareness on the new meaning of the word (sensitize on the change in meaning) and to use it in sentences formation (phrase level). This could followed on each marker as shown in the Figure 6. Once the client got the concept of using/ framing the bound morpheme and its use in syntax, then clinician could change the root word to various other grammatical categories like gender, pronoun, proper noun, etc.

2.6.1. Activity

Initially clinician could provide awareness & explain about; what the case markers are? how many are there with respective client's language?, how they are different from each other?, etc. (Table 3). Later could select any root word of the language and could ask the client to combine it with case marker & morphs, that provided and to frame a new meaningful word. In between clinician could provide the hint of usage of morphs based on to the root-word as shown in the Figure 6. Clinician could give an example or model the activity and could ask the client to follow the process. Once client constructed a morphemic word, he/she could made to use it in simple phrase level utterance. Clinician could also use picture cards or the orthographical cards to work in the session as shown below. Later clinician could work the same root word morphing with other morphs similarly as shown in Figure 6 (Male: /ra:ma/; Female: /ra:dɛ/; Other: /simhə/).

Table 3: Detail description of case markers with examples.

Case Markers	Markers	Description	Examples
Nominative	/u/	Marks the subject of the sentence.	/rameshanu angadige ho:da/
Accusative	/ənnu/	Marks the object of the transitive verb.	/na:nu kaddijannu muride/
Instrumental/ Ablative	/ində/	Marks the movement 'from' something and/or cause.	/su:rjaninda beleku dorejuttade/
Dative	/ɡɛ/	Marks the object direct impact of a verb.	/nanage otte hasijutide/
Genitive	/a/	Marks the possession or appurtenance.	/hallija u:ta ruchijagiruttade/
Locative	/əllɪ/	Marks the location with spatial reference.	/jombinalli niiru kaalijagide/
Vocative	/e:/	Marks the case of addressing a noun.	/gurugale: pa:ta he:likodi/

Root Word	Markers	Morphs	Bound morpheme	Phrases
	/u/	/nu/	/ra:manu/	/ra:manu bənda/
	/ənnu/	/nənnu/	/ra:manənnu/	/ra:manənnu no:dɪdɛ/
	/ində/	/nində/	/ra:manində/	/ra:manində gɛddɛ/
/ra:ma/	/gɛ/	/nɪgɛ/	/ra:manɪgɛ/	/ra:manɪgɛ koʈʈɛ/
	/a/	/na/	/ra:mana/	/ra:mana pustəkə/
	/əllɪ/	/nəllɪ/	/ra:manəllɪ/	/ra:manəllɪ ʃəktɪ ɪdɛ/
	/e:/	/ne:/	/ra:mane:/	/ra:mane: kuʅɪtɪko/

	Morphs	Bound morpheme		Morphs	Bound morpheme
	/ʅu/	/ra:dəʅu/		/ju/	/ra:dɛju/
	/ʅənnu/	/ra:dəʅənnu/		/jənnu/	/ra:dɛjənnu/
	/ʅɪndə/	/ra:dəʅɪndə/		/jɪndɛ/	/ra:dɛjɪndɛ/
/ra:də/	/ʅɪgɛ/	/ra:dəʅɪgɛ/	/ra:dɛ/	/jɛ/	/ra:dɛjɛ/
	/ʅa/	/ra:dəʅa/		/ja/	/ra:dɛja/
	/ʅəllɪ/	/ra:dəʅəllɪ/		/jəllɪ/	/ra:dɛjəllɪ/
	/ʅe:/	/ra:dəʅe:/		/je:/	/ra:dɛje:/

/simhə/

/ʋu/	/ʋənnu/	/dɪndə/	/kɛ/	/da/	/dəllɪ/	/ʋe:/
/simhəʋu/	/simhəʋənnu/	/simhədɪndə/	/simhəkkɛ/	/simhəda/	/simhədəllɪ/	/simhəʋe:/

Fig. 6: Activities to rooting / morphing skills at morphemic level.

While affixing a morph most of the times it depends on the category of the root-word, the end of the syllable/ phoneme of the respective root-word and the type of case marker to morphed. For example in case of grammatical noun categories place, animal, things, person and so on, the affixes vary each other (examples given below). In case of root-word of gender category often for male the infix /n/ (/ra:ma/ + /ində/ + /n/ = /ra:manində/) is considered in morphing, similarly in females infix /ḷ/ or /j/ (/ra:də/ + /əllɪ/ + /ḷ/ = /ra:dəḷəllɪ/ or /ra:dɛ/ + /ənnu/ + /j/ = /ra:dɛjənnu/) is considered and for others infix /ʋ/ (/simhə/ + /ənnu/ + /ʋ/ = /simhəʋənnu/) is considered in morphing (Figure 6) and varies so on with other categorical words. Some time there are no chance of adding an additional infix, but can follow with the end of the syllable of the root-word for morphing (ex: /maɪsu:ru/ + /ində/ = /maɪsu:rində/). Considering these principles, one must be aware of the process of infix when morphing a root word.
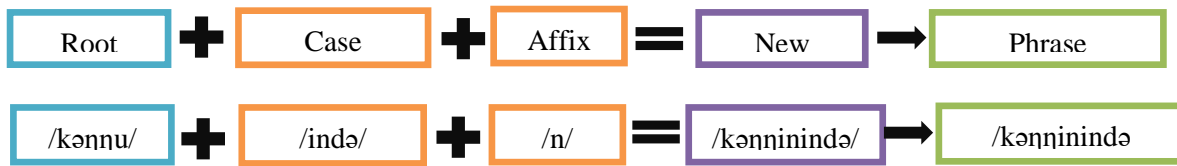
Place: /kərna:ʈəka/ + /əllɪ/ + /d/ = /kərna:ʈəkadəllɪ/; /bɛʈʈa/ + /e:/ + /ʋ/ = /bɛʈʈaʋe:/

Animal: /kurɪ/ + /əllɪ/ + /j/ = /kurɪjəllɪ/; /mi:nu/ + /gɛ/ = /mi:nɪgɛ/

Things: /tʃi:lə/ + /a/ + /d/ = /tʃi:ləda/, /pətra/ + /kɛ/ = /pətrakkɛ/

Plurals: /juʋəkəru/ + /ində/ = /juʋəkərində/; /həsugəḷu/ + /ənnu/ = /həsugəḷənnu/

It is very important to work at all the possible root-words with regard to noun, pronoun, person, gender, adjectives, action verbs and other grammatical categories. Because, this rooting skills have increased the clients' comprehension & processing skill of morphing to new meaningful words.

Verb: /no:ɖu/ + /ində/ + /dər/ = /no:ɖɪdərində/; /oɖɪdə/ + /kɛ/ = /oɖɪdəkkɛ/

Adjective: /ka:rə/ + /kɛ/ = /ka:rəkkɛ/; /səppɛ/ + /u/ + /j/ = /səppɛju/

Preposition: /du:ra/ + /əllɪ/ + /d/ = /du:radəllɪ/, /pəkka/ + /a/ + /d/ = /pəkkəda/

Not all the markers could be use frequently for the new word formation because it also follows the principles of each language (Kodagunti, 2011). For example /surɪ/ + /gɛ/ = /surɪgɛ/, this process of morphing can't be accepted, because the root word itself as given clear meaning and the new word formed is non-meaningful in nature, similarly another example /bəḷəpə/ + /dɛsɛjɪndə/ = /bəḷəpəda dɛsɛjɪndə/ which is meaningless and frequency of use of this morph to certain root-word in Kannada language are less and unsuitable.

In Kannada language the markers nominative, locative, accusative, genitive & instrumental are frequency usage are higher than dative, ablative & vocative (Kodagunti, 2011). It has assumed that /desejinda/ and /inda/ are providing similar meaning in context and rarely the marker /dɛsɛində/ used for persons than to any other grammatical categories. The use of markers /kɛ/ vs /gɛ/ would depend on the end of the phon of the root-word i.e., when the root-word ends with phon /ə/ then /kɛ/ morph is routinely used as case

marker. For example in the root word /pəʈə/ the end phon is /ə/ now to morph with a dative marker, then would need to select /kɛ/ than the /gɛ/ marker i.e., /pəʈəkkɛ/ (more meaningful) than /pəʈəggɛ/ (less meaningful). There are chances of morphological marking could be obligatory, and additional morphology (infix) is required in order to achieve the appropriate inflection morpheme (Lidz, 2006; Amritavalli, 2007). Hence, keeping these challenges one must be very much careful in explaining the meaning of these morphemic principles in the training aspects, as it various with respect to intra and inter language structures & principles.

2.7. Implementation

All the steps of the activities could carried based on International Classification of Functioning, Disability, and Health (ICF) & Evidence-Based Practice (EBP) based treatment model, i.e., client and clinician based training approaches. Clinician could work from Meta-linguistic (M) to Rooting (R) (top-down approach) or from R to M (bottom-up approach) but should be aware of child's need & the level of processing skills. Each of the steps and approach could work in more creative manner with various stimulus materials not confined to verbal, but extended to visual, tactile & other sensory modalities. Clinician could proceed to the next level / phases / skills only if the child has achieved equal and above 80% of consistent responses in each of the levels of the MARKER approach. Make sure the stimulus selection should base on child's age, gender, intellectual quotient, living environment, and speech-language processing skills.

Similar methodology can carried out by parents at home, considering the stimulus of daily day activities, so that the child can generalize the learning skills. It is better to train the individuals with increased stimulability at visual, auditory and orthographical stimulus. Make sure even the feedback mechanism provided regularly to maintain the consistent output responses and responses could be improve by providing appropriate clues and prompts. Most of the time the behavioral changes are very flexible in case of children, so to maintain the desired behavior, the conditional, operant and the observational behavioral strategies can be implemented along with the MARKER approach, which also facilitate in improving the child's overall language skills. A well-planned treatment designs should implemented in the sessions with appropriate reinforcement strategies and documenting the client response is an important etiquette. Let the motto be, to improve the quality not just the quantity of life of an individual.

2.8. Applications

All the activities in MARKER approach planned and developed with respect to all possible languages, situation, places, age, and individuals' capacity & in various setup. This approach focused on specific to linguistic form i.e., phonological encoding, morpheme and morpho-syntactic skills, which involved the complex process in language formation than other components of semantics & pragmatics. Most of the individuals' with language disorders learn the semantic components easily and will have difficulty in comprehending morpheme principles & sentence structures. In addition, they lack in comprehending the formation, process & language principles, as seen in Learning Disabilities, Specific Language Impairment & Development Language Disorders. As a solution, the MAKER approach provides a spatial sketch & a mind map of, language comprehension, processing, formation & an execution skill and helps in improving the language developmental skills in persons with communication disorders.

Since the MARKER approach is sensitizing on higher language & cognitive skills, non-verbal communication skills & auditory skills, the approach could also use to train other communication disorders like Intellectual Disability, Autism Spectrum Disorder, Hearing Impairment, Neuro-developmental Disorders and so on. The approach won't differ much with cultural and linguistic background as it is focusing more on the language functions & processing skills than on structures, easily clinicians can work these skills even in other languages too and can see the efficiency of the approach. If clinician wishes to include any other approaches working for language components in combination with MARKER approach, it is appreciable, as it known factor that holistic approach leads to effective treatment.

3. Conclusion

MARKER approach is a newly proposed program for training the case markers and other features of morphology & syntax of a language. It aimed at improving the language functions and processing skills between the central-peripheral and concrete-abstract levels using certain facilitative skills. The facilitative skills are, Metalinguistic awareness skills, Auditory skills, Rainbow coloring skills, Key featuring skills, Expanding, extending & exploring skills, and Rooting skills. This approach planned based on bottom-up, top-down and dual model approach to work more on parallel distribution processing abilities. The treatment approaches developed in native language & cultural background, and one can implement the similar strategies when working in other languages. However, this re/habilitation approach focused on a client & clinician-based approach, it holds the essence of evidence-based practices, which need be validate in future research studies.

Acknowledgement

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