

## On the Input-Intake-Output Continuum: Towards a Comprehensive Theoretical Model of L2 Comprehension and Acquisition

### A Propos du Continuum Entrée-Réception-Sortie: Vers un Modèle Théorique Global de la Compréhension et de l'Acquisition d'une Langue Seconde

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**Abstract:** While much progress has been made in understanding the roles of input, intake, and output in second and foreign language acquisition, many questions remain regarding their precise interconnectedness. Moreover, few researchers have considered how these constructs intersect with other key concepts like noticing, cognitive processes, and metacognitive strategies. It is argued all throughout that while different theories offer valuable insights, a more comprehensive approach that integrates the diverse perspectives is necessary to fully understand how learners acquire new languages. The present theoretical research delves into the intricate dynamics of acquisition and aims to address these gaps by positing a continuum view of input, intake, and output. Bloom's cognitive taxonomy is used as an implementational framework. By reconciling the diverse perspectives, the paper eventually proposes a comprehensive theoretical model of language comprehension and acquisition, while highlighting the cyclical nature of the continuum through feedback loops. Implications and recommendations are thereby discussed.

**Keywords:** Acquisition - Comprehensive Model - Input - Intake - Output

**Résumé :** Bien que des progrès considérables aient été réalisés dans la compréhension des rôles de l'entrée, la réception et la sortie dans l'acquisition des langues, de nombreuses questions demeurent quant à leur interdépendance. Peu de chercheurs ont examiné la manière dont ces concepts interagissent avec d'autres concepts comme l'attention, les processus cognitifs et les stratégies métacognitives. Bien que différentes théories offrent des perspectives précieuses, une approche globale intégrant les perspectives diverses est nécessaire pour comprendre pleinement comment les apprenants acquièrent de nouvelles langues. Cette recherche théorique explore les dynamiques complexes de l'acquisition et vise à combler ces lacunes en proposant un continuum. La taxonomie de Bloom est utilisée comme cadre de mise en œuvre. L'article propose finalement un modèle théorique global de la compréhension et de l'acquisition, tout en mettant en évidence la nature cyclique du continuum à travers des boucles de rétroaction. Les implications et recommandations sont discutées en conséquence.

**Mots- clés :** Acquisition - Modèle Global - Entrée - Réception - Sortie.

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## Introduction

Second and foreign language (L2) acquisition is a multifaceted phenomenon that involves numerous interacting variables. It has been a topic of intense interest among researchers and practitioners for decades, resulting in a proliferation of theories and models. Despite their respective merits and extensive research in the field, there remains no widely accepted consensus on what constitutes the most effective approach to understanding and acquiring a new language. Besides, none fully captures the intricate dynamics of L2 acquisition and its relation to general cognitive processes. Instead, different scholars have proposed competing, and at times opposing, hypotheses and models that attempt to explain the underlying mechanisms involved in L2 development. Among the most influential of these are Krashen's Input Hypothesis, Swain's Output Hypothesis, and Schmidt's Noticing Hypothesis, to name but a few. Each of these theories highlights certain aspects of L2 development but tends to downplay others, leading to ongoing debates about the optimal way to conceptualize and facilitate this complex process.

This paper seeks to move beyond these narrow perspectives by integrating the foregoing theories into a holistic model and arguing that L2 development is best understood as a complex whole. The primary focus will be on the relationship between input, intake, and output, which are viewed here as a *continuum* rather than separate stages or components. The continuum, on which the model is centered, elucidates the complementary roles of each of its components and highlights its *cyclical* and iterative nature, where feedback from output informs subsequent cycles of input, intake, and output. It is argued that the stages of the continuum are mediated by comprehension mechanisms, noticing experiences, and hypothesis testing. Additionally, Bloom's taxonomy of cognitive behavioral objectives is used as a working implementational framework, where emphasis is put on the importance of cognitive processes and metacognitive strategies in fostering successful L2 outcomes. By drawing on insights from the seminal works of Krashen, Swain, Schmidt, and Bloom, the paper aims to develop a *comprehensive theoretical model* of L2 *comprehension* and *acquisition*, thus suggesting a more nuanced understanding of how L2 learners comprehend, internalize, and produce language in diverse settings. All throughout, supporting evidence from empirical studies is provided.

Implications and recommendations for pedagogy and future research are explored, underscoring the need for comprehensible input, cognitive engagement with input, opportunities for output production, feedback loops, and support for metacognitive development in language instruction. While recognizing the need for further empirical validation, this integrated framework contributes to a holistic understanding of these key components in L2 acquisition.

## 1. Theoretical Foundations

L2 acquisition is a process starting with the *input* that learners receive, moving to the *intake* they consciously process through practice, and eventually ending up with the *output* they produce. Doubtless, input *comprehension* is a prerequisite for intake, and so is the role of output. As for *noticing*, it will be argued all throughout that it should be operant therein for *acquisition* to occur.

## 1.1. Understanding Intake Mechanisms: Comprehension and Acquisition

*Comprehension* plays a pivotal role in facilitating language *acquisition*. As Gass (1997) notes, comprehension is a necessary condition for acquisition to happen. Learners must comprehend the linguistic and semantic content of the *input* for acquisition to occur. Without comprehension, input cannot be effectively processed, acquired or, say, integrated into the learner's interlanguage system. This aligns with Bloom's Taxonomy of cognitive behavioral objectives (Bloom et al., 1956), where comprehension – a lower-order cognitive process – is a prerequisite for higher-order cognitive processes, which are essential for language acquisition (see below).

The process of *intake* is invisible to the bare eye; it becomes visible when learners are asked to *output* in the target language, an action that is likely to be conducive to comprehension and acquisition. Three main putative causative variables that are hypothesized to make intake (and, thus, comprehension and acquisition) happen are provision of, or exposure to, input (Krashen, 1985), output opportunities (Swain, 1985, 1995), and noticing (Schmidt, 1990, 2001).

In point of fact, *comprehension* is a crucial link between *input*, *intake*, and *output*. That is, learners must comprehend the input for it to become intake, so comprehension is a prerequisite for *acquisition* to occur. In its turn, output can contribute to comprehension by prompting learners to *notice* gaps and seek out relevant input, while also reinforcing and consolidating acquired linguistic knowledge. At this stage, a detailed account of the three putative causative variables is very much in order.

## 1.2. The Input Hypothesis

Krashen's Input Hypothesis (Krashen, 1985) is one of the most influential theories in L2 acquisition research. According to this hypothesis, language *acquisition* occurs when learners receive *comprehensible input* that is slightly beyond their current level of proficiency. Krashen argues that comprehensible input is a causative variable, and that other factors, such as explicit instruction and output, play only a facilitating role.

Krashen's hypothesis has had a significant impact on language teaching methodologies, promoting the use of comprehensible and meaningful input in the classroom. Besides, it has contributed to the development of instructional approaches such as the Natural Approach and Total Physical Response (Richards & Rodgers, 2014).

Notwithstanding the fact that Krashen's Input Hypothesis has been widely influential, it has also been subject to criticism from researchers who argue that input alone is not sufficient for successful language intake or acquisition and that other factors, such as output and conscious learning, play a more significant role (Swain, 1985; Schmidt, 1990, 2001).

## 1.3. The Output Hypothesis

In contrast to Krashen's emphasis on input, Swain's (1985, 1995) Output Hypothesis highlights the importance of *output* in L2 acquisition. After all, one cannot dig into the minds of L2 learners to claim with certainty that intake has indeed taken place; here comes the role of output. According to this hypothesis, output serves three key functions:

1. *The noticing/triggering function*: Producing output can prompt learners to notice gaps in their interlanguage, which can then lead them to modify their output or seek out relevant input (Swain, 1995).

2. *The hypothesis testing function*: Learners can use output as a means of testing their hypotheses about the target language, receiving feedback from interlocutors or their own internal feedback mechanisms (Swain, 1995).

3. *The metalinguistic function*: Producing output can encourage learners to engage in metalinguistic reflection, which can facilitate the development of language awareness and the internalization of linguistic knowledge (Swain, 1995).

Swain's Output Hypothesis has influenced the incorporation of output-oriented activities and tasks in language classrooms, such as information gaps, role-plays, and collaborative dialogues (Swain & Lapkin, 1995). It has also contributed to the development of pedagogical approaches like task-based language teaching (Nunan, 2004). While the hypothesis acknowledges the importance of input, it emphasizes the role of output in facilitating language *acquisition*, challenging the notion that input alone is sufficient.

#### 1.4. The Noticing Hypothesis

It seems that what distinguishes the foregoing hypotheses, among others, is the crucial role the latter hypothesis ascribes to noticing. Schmidt's Noticing Hypothesis (Schmidt, 1990, 2001) focuses on the role of *conscious attention* and *awareness* in the process of L2 *comprehension* and *acquisition*. This hypothesis posits that for *input* to become *intake*, learners must consciously *notice* and *attend to* linguistic features in the input. According to Schmidt, intake is the part of the input which learners happen to notice (Schmidt, 1990). He goes even so far as to posit that noticing is the necessary condition for acquisition to take place (Schmidt, 2001).

The Noticing Hypothesis has implications for both input and output. On the input side, it suggests that simply exposing learners to comprehensible input may not be enough; learners must also attend to and notice specific linguistic features in the input for acquisition to occur. On the output side, the hypothesis aligns with Swain's notion of the noticing/triggering function of output, as producing output can draw learners' attention to gaps in their interlanguage and prompt them to notice relevant linguistic features. To push further, Schmidt's hypothesis has influenced instructional practices that aim to enhance learners' noticing abilities, such as consciousness-raising tasks, input enhancement techniques, and focus-on-form instruction (Doughty & Williams, 1998; Ellis, 2003).

## 2. Reviewing Empirical Research

Recent studies have highlighted the interconnected nature of input provision, output opportunities, noticing and other cognitive processes in L2 comprehension and acquisition.

### 2.1. Input and Comprehension

A study by Smith et al. (2020) found that learners who were exposed to rich and varied language *input* showed higher levels of comprehension and fluency compared to those who had limited exposure to input. This emphasizes the importance of providing learners with diverse input sources to support their language development.

## 2.2. Output and Comprehension

Research by Jones and Brown (2019) demonstrated that learners who were given frequent opportunities to practise their speaking and writing skills (i.e. *output*) not only improved their fluency but also developed a greater understanding of grammar and vocabulary. Additionally, Niu (2019) conducted a meta-analysis of studies investigating the effects of output tasks on language development. The results indicated that output tasks had a significant positive effect on learners' linguistic knowledge and skills, providing empirical support for Swain's Output Hypothesis.

## 2.3. Intake and Noticing

As regards the role of *noticing*, in a study by Lee and Garcia (2018), it was revealed that learners who actively noticed and engaged with language structures in the input showed faster progress in their language acquisition journey. Godfroid et al. (2015), on their part, used eye-tracking and stimulated recall to examine the role of noticing in the intake process. Their findings suggest that learners' eye movements and reports of noticing were associated with their intake of target linguistic features, lending support to Schmidt's Noticing Hypothesis. In the same vein, Svalberg (2018) examined the effects of different instructional approaches on learners' noticing and intake of target linguistic features. The study found that consciousness-raising tasks and input enhancement techniques were effective in promoting noticing and intake, aligning with the principles of Schmidt's Noticing Hypothesis. Consistent with this claim, ample evidence (Leow, 2015) suggests that deliberate focus on target structures leads to improved L2 attainment compared to incidental exposure alone. Pushing further on the same lines of thought, Winke (2015) investigated the relationship between input enhancement techniques and comprehension in Spanish learners. The study found that textual input enhancement (e.g., bolding, underlining) facilitated better comprehension of target grammatical forms compared to unenhanced input. Izumi (2002), on her part, found that learners who were prompted to notice specific linguistic features through output tasks exhibited better acquisition of those features compared to those who did not receive such prompts. All the foregoing highlight the significance of fostering learners' awareness of linguistic features and encouraging them to actively engage with the language they are learning.

Overall, the foregoing empirical research consistently supports the claim that input provision, output opportunities, noticing and cognitive processes play integral roles in L2 comprehension and acquisition. Of note, these variables were addressed separately. By incorporating all these factors into language teaching practices, educators can effectively support learners' language development and help them achieve proficiency in their target language.

## 3. Input, Intake, and Output: Towards a Continuum View

The reviewed empirical studies provide evidence supporting the theoretical perspectives and principles discussed thus far, including the roles of input, intake, output, and noticing in L2 acquisition. Be that as it may, none have addressed them as a whole.

This paper argues for addressing L2 learning as a continuum which is suggested to integrate tenets from various and, at times, opposing theories. It acknowledges the crucial and complementary roles of input, intake, and output in L2 comprehension and acquisition,

together with the concomitant processes therein. All along, an attempt will be made to fabricate a number of figures to visually represent the different facets of the proposed comprehensive theoretical model of L2 acquisition that will be outlined shortly. The input-intake-output continuum, depicted in Figure 01 below, lies at the very heart of the said model. Broadly speaking, input refers to the linguistic signals received by learners, intake signifies the portion of input attended to and stored in memory, and output denotes the expression of learned material through speaking, writing, or gesturing.

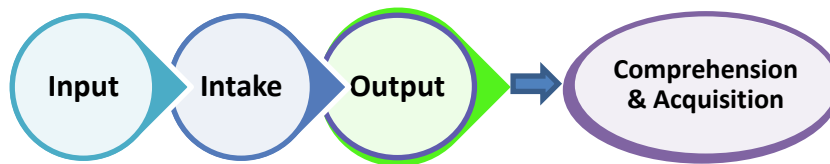


Figure 01. The Input-Intake-Output Continuum

Put this way, the input-intake-output continuum might well be misleading. In point of fact, it is not a *linear* process; rather, it involves *cycles* of *input*, *intake*, *output*, and *feedback* (see Figure 02 below). The continuum can, thus, be expanded so as to highlight its *cyclical* and *iterative* nature, where *feedback* from output can inform and enhance subsequent input, intake, and output cycles. Learners, that is, can receive feedback on their output, which can then prompt them to seek out or attend to new input, leading to further intake and subsequent output modifications. All along the learning continuum, they engage in a number of cognitive processes, guided by comprehension mechanisms, noticing experiences, and hypothesis testing. This way, comprehension and acquisition are likely to take place.

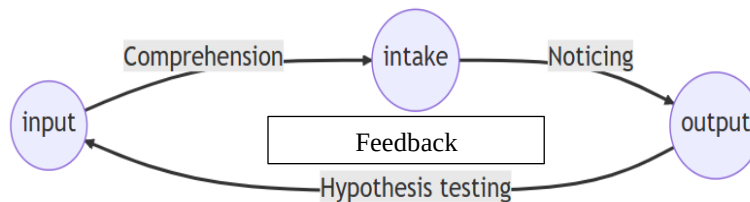


Figure 02. The Cyclical Nature of the Continuum

To elaborate further, comprehensible input, as postulated by Krashen (1985), is the foundation of language acquisition, representing messages presented to learners in a modified manner suitable for their current proficiency level. Compatibly, comprehension is imperative for efficient input processing, enabling learners to derive meaning from linguistic exchanges (VanPatten, 2004). Nevertheless, mere comprehension proves insufficient for complete acquisition, necessitating additional steps.

Intake, defined as selected input that enters working memory and influences language growth (Goh, 2000), marks the transition point from comprehension to acquisition. As learners refine their linguistic intuitions and procedural capacities, output arises as a vital component of

language development, echoing Swain's (1985) Output Hypothesis. Producing language enables learners to test their hypotheses, negotiate meaning, and gauge their comprehension of the target language, bolstering overall proficiency.

The figure substantiates the role of conscious perception in language learning, maintaining that learners must recognize and acknowledge novel linguistic phenomena to effectively absorb them. As learners traverse the input-intake-output continuum, heightened awareness of form-meaning mappings accelerates their accommodation within the expanding language system. Thus, noticing operates synchronously with comprehension and acquisition, amplifying learners' sensitivity to language-specific characteristics and encouraging incremental improvement.

The figure also highlights the iterative nature of the process. That is, it underscores the crucial role of feedback from output which enhances more input, intake, and output cycles.

### 4. A Cognitive Framework

#### 4.1. Bloom's Taxonomy as an Acquisition Framework

Bloom's Taxonomy of cognitive behavioral objectives (Bloom et al., 1956) provides a framework for understanding the cognitive processes involved in comprehension and ultimate acquisition; as such, it speaks to the nexus of the input-intake-output continuum advanced thus far. The taxonomy (see Figure 03 below) consists of six successive levels of increasingly complex cognitive processes arranged in a hierarchy: knowledge, comprehension, application, analysis, synthesis, and evaluation. These are intellectual skills where knowledge refers to remembering the information, comprehension to understanding the meaning, application to using the information, analysis to breaking it down into parts, synthesis to producing a new whole, and evaluation to judging the value of something.

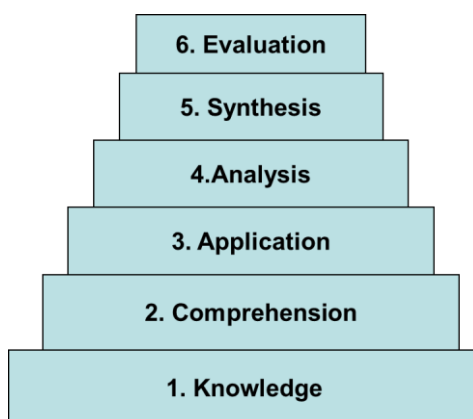


Figure 03. The Hierarchical Levels of Bloom's Taxonomy

This paper postulates that Bloom's Taxonomy can be used as a cognitive framework for the *input-intake-output continuum* with insights into the cognitive processes involved in each stage of the said continuum. In integrating this taxonomy of objectives, the *input stage* may involve the lower levels of *knowledge* and *comprehension*. In the context of L2 acquisition, *knowledge* (of input) – the ability to recall or remember facts without necessarily understanding them – is processed for further comprehension. The *comprehension* level is particularly relevant

to the continuum, for it involves understanding the meaning of L2 input, which is a prerequisite for acquisition to occur (Krathwohl, 2002); without comprehension, input may not be effectively processed and integrated into the learner's interlanguage system.

The *intake stage*, which involves as aforementioned conscious noticing and attention to specific linguistic features in the input, may require higher levels of *application*, *analysis*, and *synthesis* as learners integrate the input into their existing linguistic knowledge (Krathwohl, 2002); to put it otherwise, learners must apply their existing linguistic knowledge to analyze and synthesize the input, leading to the development of intake.

Insofar as the *output stage* is concerned, it may involve the *evaluation* level as learners assess and refine their language production based on hypotheses-testing, metalinguistic reflection, and feedback or self-monitoring. All along, adjustments are thereby made, and for acquisition to effectively occur a re-synthesis of it all might well be resorted to (see Figure 04 below).

In a nutshell, language *acquisition* occurs when the linguistic knowledge gained through the input-intake-output continuum is integrated into the learner's interlanguage system. This process of acquisition culminates in the highest levels of Bloom's Taxonomy, namely *synthesis* and *evaluation*, as learners synthesize their linguistic knowledge and evaluate their language proficiency. Empirical studies have advanced ample evidence of the relationship between Bloom's Taxonomy and language learning; as a good case in point, Ghahremani and Azitabar (2012) found that instructional activities aligned with higher levels of Bloom's Taxonomy, such as analysis and synthesis, contributed to better vocabulary acquisition and retention among EFL learners. By considering the cognitive dimensions of the input-intake-output continuum through the lens of Bloom's work, educators can design instructional activities and assessments that target specific cognitive skills and facilitate the progression from input to intake to output and ultimately to language acquisition.

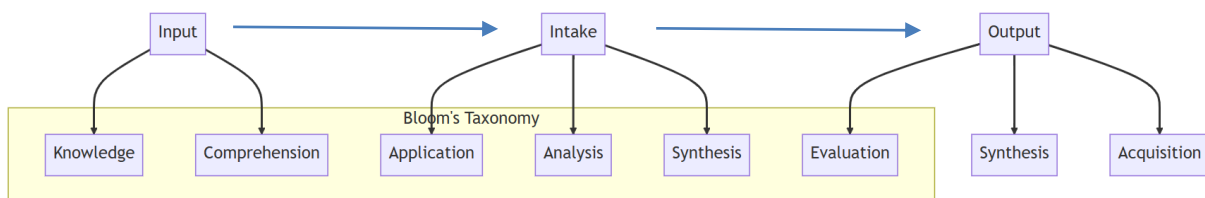


Figure 04. A Cognitive Framework for L2 Acquisition

## 4.2. Metacognitive Strategies and Cognitive Objectives

Another key aspect of our proposed acquisition model concerns the role of metacognitive strategies in facilitating L2 development. Although this concept is sometimes conflated with cognitive objectives, it refers to distinct psychological processes implicated in goal-directed action. Simply put, metacognition entails monitoring one's own thought processes during task performance, whereas cognitive objectives involve specifying desired learning outcomes before initiating an activity (Wenden, 1998). Both constructs play pivotal roles in shaping learner behaviors and informing pedagogical decisions.

Research has consistently demonstrated that skilled L2 users employ a range of metacognitive strategies to regulate their language use and enhance comprehension, retention, and recall. Examples include setting up goals, regulating learning, planning discourse moves ahead of time, adjusting speech rate or register according to audience needs, inferring meaning from context clues, and evaluating the accuracy of one's own productions, relating, planning and comparing one's learning (Vandergrift, 2007; Oxford, 2011). Such abilities depend crucially on the ability to *attend* selectively to relevant features of the environment. As noted earlier, Schmidt's Noticing Hypothesis posits that learners must first become aware of linguistic forms before they can begin to incorporate them into their developing system.

### 5. Towards a Comprehensive Theoretical Model of L2 Acquisition

Insights from the theories discussed above do inspire the input-intake-output continuum of L2 acquisition, however different and contradictory they might be. To reconcile the divergent positions, it is necessary to develop a comprehensive theoretical model (henceforth, CTM), by integrating these perspectives and acknowledging the *interplay* among input, intake, and output, and the role of noticing in L2 acquisition. Having then outlined the basic tenets of our continuum model, we now turn to examine how the foregoing ideas converge into, and fit within, a more CTM, encompassing the suggested framework, namely the cognitive. To do so, we briefly review key proposals associated with Krashen, Swain, Schmidt, and Bloom, highlighting points of intersection and divergence vis-à-vis the two models advanced so far (i.e. the continuum and the CTM).

One of the major challenges facing L2 researchers is how to define and characterize the fundamental constructs of interest, particularly those related to the nature and quality of linguistic data available to learners. Krashen's Input Hypothesis represents perhaps the most well-known and controversial proposal within L2 circles. Actually, critics have questioned the validity of these claims citing counterevidence from various sources (e.g., Gregg, 1984; McLaughlin, 1987), let alone the fact that the theory is in no way comprehensive. Nevertheless, Krashen's emphasis on the primacy of input resonates strongly with our continuum view and sets the stage for the acquisition process. Learners, that is, need to receive adapted input which is slightly beyond their current level of proficiency for comprehension to be due, without adhering completely to Krashen's ideas; for reminder purposes, his ideas are loaded with principles that go counter the other pieces that make up and contribute to the present continuum, namely output and noticing. Put this way, it follows that L2 input constitutes a cornerstone in the proposed CTM, without adhering much to Krashen's extreme ideas.

Swain's Output Hypothesis offers a valuable counterpoint to Krashen's position by foregrounding the importance of production in L2 development. She argues that simply receiving input is insufficient for mastery because it fails to elicit accurate usage or expose hidden errors. Instead, she calls for opportunities to communicate meaningfully in order to *push* learners beyond their comfort zones and foster deeper processing. Notwithstanding the fact that the very idea of 'pushed output' against the learners' will invited considerable critique, her theory, which is by no means comprehensive, bears resemblance to our concept of conscious cognition, wherein learners come to a state of noticing the gap between the input exposed to and their own output.

The Input Hypothesis and the Output Hypothesis offer opposing positions regarding how L2 acquisition takes place. The Input Hypothesis emphasizes the crucial role of comprehensible input (defined as language addressed to learners that contains structures slightly above their current level of competence), while the Output Hypothesis underscores the significance of output in reinforcing and consolidating linguistic knowledge (by pushing learners towards higher levels of proficiency, primarily by revealing gaps in their knowledge and prompting them to engage in strategic self-repair). These views appear contradictory, yet they share some essential assumptions about the centrality of input and output in L2 development, and they are hence both integrated in the proposed comprehensive theoretical model.

As regards Schmidt's Noticing Hypothesis, it is very much in keeping with the latter hypothesis – but not with its antithesis – highlighting the importance of attention and awareness in the intake process. Learners are, thus, required to attend to and notice specific linguistic features in the input for it to be effectively processed as intake. Be that as it may, it is used in the present model to occupy a middle ground between input-oriented and output-based perspectives by underscoring the necessity of conscious attention for L2 learning to occur. Unlike Krashen, who maintains that consciousness impedes natural acquisition, Schmidt contends that noticing serves as a gatekeeper mechanism responsible for filtering salient information from background noise. His claims find support in numerous experimental studies demonstrating that directed attention enhances learners' ability to detect and encode linguistic regularities. Additionally, his focus on metacognitive regulation accords well with our stance on the value of metacognitive strategies and cognitive objectives in guiding L2 development. Therefore, noticing and attentional mechanisms are a defining characteristic of the comprehensive model at hand.

Finally, Bloom's Taxonomy of educational objectives is used to provide a working framework for understanding and implementing the cognitive processes involved in initial comprehension and eventual acquisition throughout the stages of the input-intake-output continuum. It offers useful categorizations for organizing and scaffolding L2 instruction around the six hierarchically arranged domains. These labels capture important facets of cognitive complexity inherent in L2 tasks, requiring learners to draw upon increasingly sophisticated mental operations as they advance along the continuum towards the final stage, namely output. Output itself can reinforce and consolidate the linguistic knowledge gained at the input and intake stages through the respective levels of Bloom's Taxonomy.

All along, *metacognitive* processes, such as monitoring one's own learning, setting goals, and employing strategies, play a crucial role in facilitating the progression from input to intake and eventually to output; these are assumed to operate at different stages of the continuum and at all levels of the taxonomy (see Figure 05 below, where the arrows, which represent the interconnectedness of the whole acquisition process through feedback loops, show as well where such strategies can be used). It is, therefore, argued that the taxonomy offers a practical framework within which the said continuum is said to operate and as such speaks to the comprehensiveness of the wider model advanced here.

By synthesizing the insights gleaned from these theoretical perspectives, educators can develop more effective language teaching methodologies that cater to learners' diverse needs and preferences. Incorporating activities that promote both input comprehension and output

production can facilitate a balanced approach to language instruction, maximizing learners' opportunities for language acquisition.

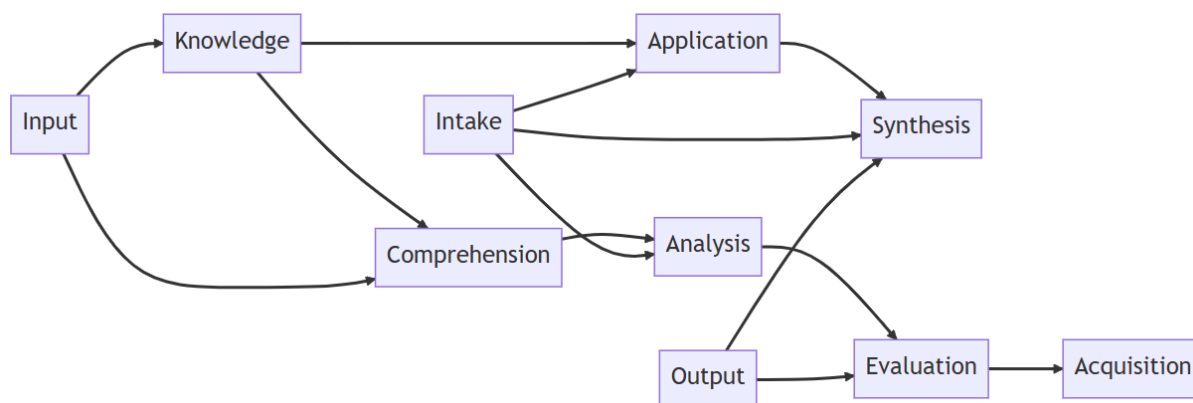


Figure 05. A Comprehensive Theoretical Model of L2 Acquisition

## 6. Implications and Recommendations

The theoretical framework integrating perspectives on input, intake, output, noticing, and cognitive processes has several implications and recommendations for foreign language pedagogy and future research.

### 6.1. Pedagogy

#### 6.1.1. Instructional Design

Language instructors should design learning activities and assessments that align with the various levels of Bloom's Taxonomy, facilitating the progression from input to intake, output, and ultimately acquisition. This can involve a gradual increase in cognitive complexity, starting with knowledge and comprehension tasks for input, transitioning to application, analysis, and synthesis tasks for intake, and culminating in evaluation tasks for output and acquisition.

#### 6.1.2. Input Enhancement

To facilitate noticing and intake, language instructors should employ techniques that enhance the saliency of target linguistic features in the input. This could include strategies such as textual input enhancement, visual input enhancement, and structured input activities.

#### 6.1.3. Output Opportunities

Providing ample opportunities for learners to produce output is crucial, as it can serve the noticing/triggering, hypothesis testing, and metalinguistic functions. Activities such as information gaps, role-plays, and collaborative tasks can encourage output production.

#### 6.1.4. Feedback and Iteration

Instructional practices should incorporate feedback loops, where learners receive feedback on their output and have opportunities to modify and refine their language

production. This iterative process can facilitate the integration of linguistic knowledge and promote acquisition.

#### **6.1.5. Cognitive Engagement**

Classroom activities should actively engage learners in higher-order cognitive processes, such as application, analysis, and synthesis. This cognitive engagement can support the transition from input to intake and facilitate acquisition.

#### **6.1.6. Cognitive Scaffolding**

Classroom instruction should provide cognitive scaffolding to support learners as they navigate the different levels of the taxonomy. This could involve modeling higher-order thinking processes, providing prompts and guidance, and gradually transferring responsibility to learners as they develop their cognitive skills.

#### **6.1.7. Metacognitive Support**

Language instruction should explicitly teach and support the development of metacognitive strategies, such as goal-setting, self-monitoring, and strategy use. These strategies can enhance learners' ability to navigate the input-intake-output continuum and take ownership of their language learning process.

#### **6.1.8. Differentiated Instruction**

Recognizing that learners may have different cognitive strengths and preferences, language instructors should consider differentiating their instruction to cater to various cognitive profiles. This could involve offering multiple entry points, varied learning activities, and diverse assessment methods aligned with different levels of Bloom's Taxonomy.

### **6.2. Future Research**

#### **6.2.1. Empirical Validation**

While the proposed CTM draws from established theories, empirical studies are very much warranted to validate its efficacy and refine its components. Classroom-based interventions, experimental studies, or mixed-methods approaches gathering quantitative and qualitative data could be used to investigate the effectiveness of instructional approaches aligned with the model.

#### **6.2.2. Cognitive Processing**

Further research is needed to explore the specific cognitive processes involved at each stage of the input-intake-output continuum, while drawing on Bloom's Taxonomy and other cognitive models. Neuroimaging techniques, eye-tracking, and think-aloud protocols could provide insights into these processes.

#### **6.2.3. Individual Differences**

Future studies should examine how individual learner factors, such as motivation, aptitude, learning styles, and cognitive abilities, interact with the CTM and influence the effectiveness of different instructional approaches.

#### **6.2.4. Longitudinal Studies**

Longitudinal research is necessary to investigate the long-term effects of instructional practices aligned with the CTM on language acquisition and proficiency development over

time. This could involve tracking learners' progress and cognitive growth throughout their language learning journey.

### 6.2.5. Technological Integration

As technology continues to evolve, research should explore the potential of technological tools and resources (e.g., artificial intelligence, virtual reality, intelligent tutoring systems, mobile apps, to name but a few) to enhance the CTM and support language learning.

By considering these implications and recommendations and implementing instructional practices that align with this integrated model, researchers and educators can contribute to a deeper understanding of the cognitive processes involved in the input-intake-output continuum and the wider CTM and their role in second/foreign language acquisition, ultimately informing more effective language teaching and learning practices.

## Conclusion

The input-intake-output continuum lies at the heart of L2 acquisition theory and research, representing the intricate interplay between language exposure, conscious processing, and linguistic production. This article embarked on a journey to harmonize seemingly disconnected influential theoretical perspectives, ultimately yielding a unified whole. Specifically, it has endeavored to synthesize several seminal works, including Krashen's Input Hypothesis, Swain's Output Hypothesis, Schmidt's Noticing Hypothesis, and Bloom's Taxonomy of cognitive behavioral objectives, to develop a comprehensive theoretical model for understanding this continuum and make acquisition happen.

The proposed model acknowledges the complementary roles of input, intake, and output in L2 comprehension and acquisition, as well as the importance of noticing, cognitive processes, and metacognitive strategies. It highlights the cyclical and iterative nature of this seamless continuum, where feedback from output informs and enhances subsequent input, intake, and output cycles, facilitating thus the effective integration of linguistic knowledge and promoting language acquisition.

While this theoretical framework provides a valuable foundation for understanding the input-intake-output continuum, it is essential to acknowledge its limitations. As a case in point, the model is primarily theoretical and may require further empirical validation and refinement. Besides, individual learner factors, such as motivation, aptitude, and learning styles, may influence the effectiveness of the various components of the continuum and should be considered.

Future research should explore the practical applications of this model in different instructional contexts and learner populations. Additionally, investigations into the specific cognitive and metacognitive processes involved at each stage of the continuum could yield valuable insights for optimizing language learning and teaching practices.

As technology continues to evolve, researchers should also explore the potential of technological tools and resources to enhance the input-intake-output continuum and support language learning. Longitudinal studies are necessary to track the long-term effects of instructional practices aligned with the proposed model on language acquisition and proficiency development.

To cut it short, the input-intake-output continuum remains a pivotal concept in second language acquisition theory and research. By synthesizing established theoretical perspectives,

this paper aimed to provide a comprehensive model for understanding and optimizing the interplay of input, intake, output, noticing, cognitive processes, and metacognitive strategies in L2 acquisition. Its importance notwithstanding, the author contends that it is through continued research, empirical investigation, and pedagogical innovation that we can further refine our understanding of this model and the continuum therein and develop more effective language teaching and learning practices.

### List of Bibliographical References

1. BLOOM, B. S., *et al.*, (1956), *Taxonomy of educational objectives: The classification of educational goals, Handbook I: Cognitive domain*, New York, David McKay Company.
2. DOUGHTY, C. and WILLIAMS, J., (1998), *Focus on form in classroom second language acquisition*, Cambridge, Cambridge University Press.
3. ELLIS, R., (2003), *Task-based language learning and teaching*, Oxford, Oxford University Press.
4. ELLIS, R., (2008[1994]), *The study of second language acquisition*, Oxford, Oxford University Press.
5. GASS, S. M., (1997), *Input, interaction, and the second language learner*, Mahwah, NJ, Lawrence Erlbaum Associates.
6. GHahremani, M. and AZITABAR, F., (2012), "The effect of Bloom's taxonomy levels on vocabulary achievement of Iranian EFL learners", *in*, The journal of teaching language skills 4(3), pp. 55-74.
7. GODFROID, A., *et al.*, (2015), "Timed and untimed grammaticality judgments measure distinct types of knowledge: Evidence from eye-movement patterns", *in*, Studies in second language acquisition 37(2), pp. 269-297.
8. GOH, C. M., (2000), "Comprehensible input, interaction and second language acquisition", *in*, ELT journal 54(2), pp. 156-164.
9. GREGG, K. R., (1984), "Krashen's input hypothesis: Some empirical evidence from foreign language instruction", *in*, Modern language journal 68(4), pp. 342-351.
10. IZUMI, S., (2002), Output, input enhancement, and the noticing hypothesis: An experimental study on ESL relativization", *in*, Studies in second language acquisition 24(4), pp. 541-577.
11. JONES, R. and BROWN, S., (2019), "Enhancing L2 acquisition through output opportunities", *in*, TESOL quarterly 25(3), pp. 78-91.
12. KRASHEN, S. D., (1985), *The input hypothesis: Issues and implications*, London: Longman.
13. KRATHWOHL, D. R., (2002), "A revision of Bloom's taxonomy: An overview", *in*, Theory into practice 41(4), pp. 212-218.
14. LEE, M. and GARCIA, D., (2018), "Noticing and language acquisition: A longitudinal study", *in*, Language learning 40(4), pp. 112-125.
15. LEOW, R. P., (2015), *Input processing and awareness in second language acquisition*, John Benjamins Publishing Company.
16. MCLAUGHLIN, B., (1987), *Theories of second language learning*, Edward Arnold.
17. NIU, R., (2019), "The effects of output tasks on language learning: A meta-analysis", *in*, The modern language journal 103(4), pp. 754-773.

18. NUNAN, D., (2004), *Task-based language teaching*, Cambridge: Cambridge University Press.
19. OXFORD, R. L., (2011), *Teaching and researching language learning strategies: Self-regulation in context*, Pearson Education Limited.
20. RICHARDS, J. C. and Rodgers, T. S., (2014), *Approaches and methods in language teaching*, Cambridge: Cambridge University Press.
21. SCHMIDT, R., (1990), "The role of consciousness in second language learning", in, *Applied linguistics* 11(2), pp. 129-158.
22. SCHMIDT, R., (1995), "Consciousness and foreign language learning: A tutorial on the role of attention and awareness in learning", in, R. Schmidt (Ed.), *Attention and awareness in foreign language learning* (pp. 1-63), Honolulu, HI: University of Hawai'i Press.
23. SCHMIDT, R., (2001), "Attention, awareness, and individual differences in language learning", in, R. Schmidt (Ed.), *Attention and awareness in foreign language learning* (pp. 1-14), John Benjamins Publishing Company.
24. SMITH, A., JOHNSON, B. and DAVIS, C., (2020), "The impact of input provision on L2 comprehension and acquisition", in, *Journal of language education* 15(2), pp. 45-58.
25. SVALBERG, A. M. L., (2018), "Incorporating attention to multilingualism and language awareness into language teacher education programmes: Insights from research", *Language awareness* 27(1-2), pp. 106-124.
26. SWAIN, M., (1985), "Communicative competence: Some roles of comprehensible input and comprehensible output in its development", in, S. Gass & C. Madden (Eds.), *Input in second language acquisition* (pp. 235-253), Rowley, MA: Newbury House.
27. SWAIN, M., (1995), "Three functions of output in second language learning", in, G. Cook & B. Seidlhofer (Eds.), *Principle and practice in applied linguistics: Studies in honour of H.G. Widdowson* (pp. 125-144), Oxford: Oxford University Press.
28. SWAIN, M. and LAPKIN, S., (1995), "Problems in output and the cognitive processes they generate: A step towards second language learning", in, *Applied linguistics* 16(3), pp. 371-391.
29. VANDERGRIFT, L., (2007), "Recent developments in second language listening comprehension research: Methodological issues and directions for classroom teaching", in, *Annual review of applied linguistics* 27, pp. 121-141.
30. VANPATTEN, B., (2004), *From input to output: A teacher's guide to secondary language acquisition*, McGraw-Hill.
31. WENDEN, A., (1998), "Metacognitive knowledge and skills in learner autonomy", in, P. Benson & P. Goh (Eds.), *Learners' stories: Developing self-understanding in foreign language learning*, (pp. 19-35), Cambridge, CUP Archive.
32. WINKE, P. M., (2015), "Examining the effectiveness of textual input enhancement for learners of Spanish L2", in, *Language teaching research* 19(4), pp. 444-473.