



Testing Approaches and Psycholinguistic Processes in Input Modification Studies: A Critical Review

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Abstract. Language testing and language teaching are closely interrelated, each influencing the other. Language testing has followed the trends in language teaching, which have, in turn, influenced by theories in linguistics and psychology. The psycholinguistic processes, therefore, in which psychological and linguistic principles are considered as the underlying theoretical assumptions of test construction receive a great importance. On the other hand, input modification studies, including simplification, elaboration, and enhancement, aim to investigate the effect of the types of input modification on enhancing the learners' comprehension rate. The present study, therefore, intends to critically review testing and assessment approaches and the psycholinguistic processes the input modification studies. This study first overviews the trends of language testing from the beginning to present, and then reviews critically testing and assessment techniques and the psycholinguistic processes employed in some of the most salient studies conducted in the field of input modification. The results of this review showed that language testing in input modification studies mainly goes around discrete-point and integrative testing and does not occur in a natural realistic environment, although there are few exceptions in this regard. These exceptions include debates, thinking aloud, and free recalling the context, which are communicatively oriented. Findings also indicated that among the psychological processes employed in these studies the predominant process was comprehension/production.

Keywords: testing approaches; psycholinguistic processes; input modification studies; critical review

1. INTRODUCTION

Testing is an important part of every teaching and learning experience (Madsen, 1983). Language testing almost never takes place in isolation. It is done for a particular purpose and in a specific context (Bachman, 1995). Testers are, thus, trying to improve their techniques to test the language ability more validly and reliably in compliance with advances in teaching. From this respect, language testing has moved over the years through the approaches of discrete-point, integrative, communicative language testing, and task-based language assessment. On the other hand, input modification studies which include simplification, elaboration, and enhancement have tried to employ the various testing approaches to measure the learners' comprehension rate.

The purpose of the present study is, therefore, at the first step, to critically review testing and assessment approaches in the various studies which have investigated the effect of the types of input modification in improving the learners' comprehensibility in language skills such as listening and reading. To achieve this aim, this study will first overview the trends of language testing from the historical viewpoint, and then review critically testing and assessment approaches, and psycholinguistic processes in some of the most predominant researches carried out in the scope of input modification.

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1.1. Language testing trends

Language testing has followed the trends in language teaching which have been, in turn, influenced by theories in linguistics and psychology (Farhady, Jafarpoor, & Birjandi, 2003). Considering trends in teaching approaches, Spolsky (1975) identified three periods of language testing: pre-scientific, psychometric-structuralist, and the psycholinguistic-sociolinguistic. The pre-scientific era dates back to the Chinese civil service exams two thousand years ago. Spolsky (1995) believes that the pre-scientific era in language testing took its present form from the 18th century Cambridge Tripos (p. 352). It was characterized by “the use of essays, open-ended examinations, or oral examining, with the results determined intuitively by an authorized and authoritarian examiner” (Spolsky 1995, p. 353). As the name suggests, testing in the pre-scientific era did not rely on linguistic theories, and reliability was considered less important than the production of a test. (Spolsky 1995, p. 356). Testing during the 19th century and the early decades of the 20th century was basically intuitive, or subjective. Farhady, et al (2003) believe that the nonscientific (or pre-scientific) practice in language testing comes from the grammar-translation method in teaching, which merely focused on correct form in reading and writing (p. 164).

After the pre-scientific era came the psychometric-structuralist era. The name was intended to reflect the joint contribution of the structural linguist, who identified elements of language s/he wanted to test, and the psychometrist, who produced objective and reliable methods of testing the testees’ control of those elements. The product of this era was the discrete point approach introduced by Lado. Indeed, the rationale for discrete point tests originated from the interaction between experts in structural linguistics and behavioral psychology.

The discrete point approach to testing broke language down into small testable segments. Each test item was intended to give information about the candidate’s ability to handle that particular point of language (Miyata-Boddy & Langham, 2000). According to Bynom (2001), discrete point tests were based on an analytical view of language. This is where language is divided up so that components of it may be tested. Discrete point tests aimed to achieve a high reliability factor by testing a large number of discrete items.

The main advantage of discrete point testing was that it provided easily-quantifiable data. However, it also had numerous drawbacks. Morrow (1981) notes in this regard that discrete point testing as an atomistic approach to test development is based on the unsound assumption that “knowledge of the elements of a language is equivalent to knowledge of the language” (p. 11). As he says, knowledge of discrete elements is worthless unless the user can synthesize those elements according to the linguistic demands of the situation. In line with the same argument, Oller (1979), argues against this kind of testing and asserts that “the whole is greater than the sum of its parts...” (p. 212). It is for this reason that Burrows (1993) arrives at the conclusion that such tests take language out of its context and usually bear no relationship to the concept or use of the whole language. Therefore, acquisition of the total number of the linguistic parts by language learners, although necessary, is not sufficient. These elements are meaningful in their immediate context of use.

By the 1970s, discrete point testing was no longer felt to provide a sufficient measure of language ability, and testing moved into the psycholinguistic-sociolinguistic era, with the advent of global integrative testing. Oller (1979) argued in favor of global integrative testing such as cloze tests, which required candidates to insert suitable words into gaps in a text, and dictation, and stated that it provided a closer measure of the ability to combine language skills in the way they are used for the actual language use than discrete point testing. However, Oller’s unitary trait hypothesis, which supposed that language proficiency consists of a single unitary ability

(Bachman 1990, p. 6) upon which cloze tests and dictation were based, has since been disconfirmed (Bachman, 1990) and such integrative techniques have been heavily criticized.

In addition, Alderson (1978) pointed out that the results of cloze tests are affected by the number of deleted items and where the deletions begin. Also, Morrow (1981) states that neither technique allows for spontaneous production by the candidate, relying instead on the examiner for the language input. He also criticized the techniques on the grounds that they tested competence rather than performance. In other words, they tested knowledge of how the language worked rather than an ability to use it.

The fact that discrete point and integrative testing only provided a measure of the candidate's competence rather than measuring the candidate's performance brought about the need for communicative language testing (Weir, 1990). Since the late 1970s and early 1980s, the communicative approach to language teaching gained dominance. What is actually meant by 'communicative ability' is still a matter of academic interest and research.

The efforts by Canale and Swain (1980) and Canale (1983) to define communicative competence provided a set of criteria for describing tests. They proposed a model including three competences the acquisition of which would lead to communicative competence. The first, grammatical competence, included "knowledge of lexical items and of rules of morphology, syntax, sentence-grammar semantics, and phonology" (Canale & Swain, 1980, p. 29). The second was sociolinguistic competence. It was defined as involving knowledge of the sociocultural rules of language and of discourse (Canale & Swain, 1980, p. 29). The third competence they proposed was strategic competence, which was related to "the verbal and nonverbal communication strategies that may be called into action to compensate for breakdowns in communication due to performance variables or due to insufficient competence" (Canale & Swain 1980, p. 30). In 1983, Canale updated this model by subdividing sociolinguistic competence into more competencies, which still relates to sociocultural rules, but he introduced a further competence, that is, discourse competence. Discourse competence was defined as the ability to connect sentences in stretches of discourse and to form a meaningful whole out of a series of utterances. It concerned mastery of cohesion and coherence in different genres.

The main implication this model had for communicative language testing was that since there was a theoretical distinction between competence and performance, the learner had to be tested not only on his/her knowledge of language, but also on his/her ability to put it to use in a communicative situation (Canale & Swain, 1980).

Bachman's framework (1995) was an extension of earlier models in that "it attempts to characterize the processes by which the various components interact with each other and with the context in which language use occurs" (Bachman 1995, p. 81). The framework included three components: language competence, strategic competence, and psychophysiological mechanisms. Bachman defined language competence as "a set of components that are utilized in communication via language" (Bachman 1995, p. 84). She divided language competence into two further competences, organizational competence and pragmatic competence. Each of these, in turn, consists of several categories. Organizational competence covers grammatical and textual competence, and pragmatic competence encompasses illocutionary and sociolinguistic competence.

While Canale and Swain's strategic competence put the emphasis on "compensatory" strategies, that is, strategies used to compensate or remediate for a lack in some language area, the term came to take on a broader meaning. Bachman (1990) provided a broader theoretical model of strategic competence by separating it into three components. Later, Bachman and Palmer (1996) refined the Bachman (1990) categories for strategic competence to include four

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components: assessment–respondents (in our case of language testing) assess which communicative goals are achievable and what linguistic resources are needed; goal-setting–respondents identify the specific tasks to be performed; planning–respondents retrieve the relevant items from their language knowledge and plan their use; execution–respondents implement the plan. Hence, this latest framework for strategic competence is broad and includes test-taking strategies within it. It is, thus, the mental capacity to implement language competence appropriately in the situation which communication takes place and involves sociocultural and real world knowledge. Psychophysiological mechanisms refer to the neurological and psychological processes involved in producing and comprehending language.

One notable advance on the Canale and Swain model is that Bachman acknowledges that test design and scoring might have a significant effect on the testee's performance as a result of strategic competence (Miyata-Boddy & Langham, 2000). Certain tasks lend themselves to the use of strategic competence to compensate for a lack of competence in other areas while tests which are assessed according to the "practical effect of the language performance" (Bachman 1990, p. 105) may be affected by the strategic competence factor. Canale and Swain and Bachman's are two of the more influential models of language competence, and, along with several others, they provide a useful framework for designing communicative language tests (Weir, 1990).

According to Farhady, et al (2003), "communicative tests attempt to assess the testee's performance in certain situations. The tests present the testee with integrated texts in order to interact with and produce integrated spoken or written texts with attention placed upon the whole rather than on the components" (p. 171). In fact, communicative language tests should have high content validity. If they are to be used to make judgments about how an individual can function in a normal situation outside the test, the test has to be as accurate a reflection of that situation as possible. This means that the sample of language collected and the functions the candidate is called upon to perform should be as representative as possible of the language and skills needed to function in the real life context. Tests, therefore, need to be context-specific. Farhady, et al (2003) state that communicative testing identifies the functions, the domains and the conditions under which the functions have to be performed through careful analysis of the testees' needs. Communicative language testing, as a result, should be "as direct as possible (attempt to reflect the 'real life' situation) and the functions candidates have to perform should involve realistic discourse processing" (Weir 1990, p. 12).

Another aspect of communicative language testing is that it is assessment-oriented. Communicative tests, as Morrow (1981) mentions, should be assessed qualitatively rather than quantitatively. The behaviorist view was that learning took place through habit formation. Following from this, tests such as Lados' aimed to discover whether the correct habits had been formed. If they had, they were rewarded, but if they hadn't, they weren't. Passing the test meant obtaining a certain number of correct responses. However, Morrow (1981) argues that answers to tests are more than simply right or wrong, and that they should be assessed on the basis of how far toward an approximation of the native speaker's system they have moved. Tests should reveal the quality of the testee's language performance.

After that, as an advance of communicative language testing, Task-Based Language Assessment (TBLA) came into existence. Task-Based Language Assessment, also known as Task-Centered Assessment (TCA) and Task-Based Language Testing (TBLT), is 'the process of evaluating, in relation to a set of explicitly stated criteria, the quality of the communicative performances elicited from learners as part of goal-directed, meaning-focused language use requiring the integration of skills and knowledge' (Brindley, 1994, p.74). Interest in TBLA can be attributed to such factors as the alignment of task-based assessment with task-based instruction, positive 'washback' effects of assessment practices on instruction, and the

limitations of discrete-skills assessments, or DSAs (Long & Norris, 2000). Recognizing the fact that knowledge of vocabulary and grammar (linguistic competence) is not sufficient to use a language to achieve ends in social situations, TBLA embraces a broader conception of communicative competence. In addition to linguistic competence, it broadens to the social context of language use (sociolinguistic competence), pragmatic considerations in using language to achieve goals (strategic competence), and familiarity with forms, customs, and standards of communication above the level of sentences (discourse competence). Task-based language assessment (TBLA) typically requires the integration of topical, social, and/or pragmatic knowledge along with knowledge of the formal elements of language.

There are many problems of design and analysis in TBLA. The concern in TBLA extends beyond knowledge of language *per se*, to the ability to deploy language knowledge appropriately and effectively in educationally or professionally important language-use settings. Thus, it is no longer so clear how to construct tasks that elicit desired second language performances, which aspects of performance to evaluate, how to integrate information from multiple tasks or what kinds of inferences to draw about students. For most inferential purposes, it is not enough simply to create task situations that seem important in and of themselves or demand competences of interest (Messick, 1994). Understanding what features of tasks influence their difficulty is a good next step, but it is not enough either. In language assessment, the principles of assessment design must be applied in concert with what we are learning about the ways that language knowledge interacts with other knowledge to constitute ability for use (McNamara, 1996, p. 48).

1.2. Input modification in second language acquisition

There is a general theory held by theoreticians and practitioners in the field of Second Language Acquisition in general and Input Modification Studies in particular that modified input is a prerequisite for language acquisition in both L1 and L2 contexts (Moradian, 2009). In second language learning context, input is modified in three ways. They include input simplification, input elaboration, and input enhancement. Simplification removes the difficult vocabulary items and complex syntactic structures from a text which has been already written by and for a native speaker. A simplified text is, as a result, easier to comprehend because the two major factors determining readability, as reflected in most readability formulae, are lexis and syntax. In an elaborated text, on the other hand, difficult vocabulary items and complex syntactic structures are retained. In other words, they are not deleted from the text. Elaboration can come in three types as follow: lexical elaboration, structural elaboration, and a combination of lexical and structural elaboration (e.g., Chung, 1995), and lexical elaboration of the explicit and implicit types (e.g., Silva, 2000). Elaboration attempts to increase text comprehensibility by adding redundancy to the text or making the thematic structure of the text explicit. Redundancy includes repetition of constituents, paraphrase, use of synonyms and definitions, use of left dislocation, and slower speech. Input enhancement, moreover, is a set of techniques to draw L2 learners' attention to L2 linguistic forms which are to be targets of learning. Input enhancement is primarily made in meaning- and communication-oriented situations to help L2 learners notice the linguistic forms which lack in their current interlanguage (Moradian, 2009). It includes a set of techniques to draw L2 learners' attention to formal features in the L2 input. Input enhancement devices are classified into two major categories. The first category includes typographical enhancement devices which are such effects as boldfacing, italicizing, underlining, etc or a combination of the typographical effects simultaneously. The other category includes intonational enhancement devices which are employed to enhance the oral language.

1.3. Testing and assessment approaches in input modification studies

After the brief description of the trends of language testing from the historical viewpoint and of the types of input modification in the second language learning context, the present study intends to examine testing and assessment approaches employed in some of the most salient studies conducted in the field of input modification. As mentioned earlier, language testing has tried to follow the trends and theories in language teaching. Testing techniques have, therefore, been influenced by theories in linguistics and psychology. For this reason, Farhady, et al (2003) suggest the psycholinguistic classification in which psychological and linguistic principles are considered as the underlying theoretical assumptions of item construction. While examining testing approaches in the input modification studies, the present study takes, therefore, this classification into account.

This study went through various steps. First, the leading papers and books written in the field of input modification were gathered and precisely studied. Then, the data collection tools (i.e. testing tools) of these papers were examined precisely and in detail. In this critical review both testing approaches and psycholinguistic processes employed in these researches were carefully investigated. After the detailed examination of these studies, they were listed and presented in several tables chronologically. Appendix One at the end of the paper shows a summary of assessment techniques, testing approaches, and psychological processes employed in the input modification studies under study.

The concerned studies have employed a variety of testing approaches. Some studies have used just one approach to collecting data. From this respect, Shook (1994), Chung (1995), Kim (2006), Marefat and Moradian (2008), Shahrokni (2008), Moradian (2009), Moradian and Adel (2011), Tabatabaei (2011), and Maleki and Pazhakh (2012) have used a discrete-point approach to examining the effect of input modification in their studies. The prominent techniques employed in these studies were form- and meaning-recognition tests of vocabulary. Some other studies in which integrative techniques have been employed as the only assessing approach consist of Mazaheri (1995), Mobarra (1999), Dadehbeighi (2001), Nabifar (2002), Karimi (2008), Moradian, Naserpour and Tamri (2013). The predominant integrative technique employed in these researches is multiple-choice reading comprehension questions. The reason why the multiple-choice reading comprehension items were considered as integrative was that such items involve EFL learners in comprehending the text while the multiple-choice items on vocabulary can be considered as discrete-point items.

Some of the studies, on the other hand, have employed a combination of two testing tools for measuring the effects of input modification types on the learners' comprehension. Kim (1996), Jourdenais (1998), Silva (2000), Noorshams (2003), Rahimi (2003) and Crossley et al. (2014) have used both discrete-point and integrative tests in their studies. Kim (2006), for example, to assess the learners' comprehension of unmodified and lexically elaborated texts have employed the delayed and immediate decontextualized definitions as discrete-point tests along with multiple-choice reading comprehension questions as an integrative technique to collect data. A limited set of studies have employed discrete-point and communicative approaches together as data-gathering tools. They include Alanen (1995), Leow (1997), Overstret (1998), Wong (2000), Izumi (2002), and Lee (2007). Furthermore, the studies of Jourdenais et al. (1995), Leeman et al. (1995), and Ahmadi (2001) have employed both integrative and communicative approaches. As an example, the communicative technique used in Jourdenais et al.'s (1995) study is think-aloud protocols and the integrative technique is a picture-writing production task.

Doughty (1991), White (1998), Urano (2000), Leow (2001), also, in their studies have employed three techniques related to three different approaches to language testing including discrete-point, integrative, and communicative. As an example, these techniques include

grammaticality judgment tasks and fill-in-the-blank items, sentence comprehension questions and cloze passage test, and think-aloud protocols, respectively.

Regarding the above discussion, as Table 1 shows, it is worth noticing that among testing and assessment approaches, the most commonly used approach in input modification studies is discrete-point testing (34 out of 74) while the integrative approach lies in the second place (23 out of 74). The communicative approach receives the third place (17 out of 74). Unfortunately, a brief look at the nature of the testing tools in input modification studies shows that none of these studies ever employed task-based assessment in assessing the effect of modification types on the EFL learners' interlanguage development. Necessary to say, in recent years, most researchers have begun to use the term 'testing' to apply to the construction and administration of formal or standardized tests with no feedback such as the Test of English as a Foreign Language (TOEFL) and 'assessment' in a broader sense to include both formal measurement tools which yield quantifiable scores and other types of qualitative assessment such as observation, portfolios, learner diaries and journals (Schmitt, 2002). Apparently, then, task-based assessment has been totally neglected in the studies of input modification.

Table 1. Frequency of Testing Approaches in Input Modification Studies.

Testing Approaches	Frequency
Discrete-point	34
Integrative	23
Communicative	17
Task-based	0
Total	74

Another worth-noticing issue is the psycholinguistic processes underlying input modification studies. Farhady, et al (2003) separate the psycholinguistic processes into two general dimensions: psychology and linguistics. They classify the psychological processes into four areas: recognition, comprehension, comprehension/production and production. As Table 2 shows, in the psychological dimension, the input modification studies have employed a variety of processes. It is obvious that the most applied process in these studies is the comprehension/production process (33 out of 75). Some of the testing techniques which reveal this type of process include the free recall task of comprehension, think-aloud protocols, in-class debate, short answer questions and so on. The other predominant psychological process behind testing techniques in input modification studies is the comprehension process (28 out of 75). The comprehension process can be found, for example, in multiple-choice questions assessing the L2 learners' rate of reading comprehension. The recognition process, which lies in the next place (14 out of 75), can be revealed, for instance, in grammaticality judgment tests.

Table 2. Frequency of Psychological Processes in Input Modification Studies.

Psychological Processes	Frequency
Recognition	14
Comprehension	28
Comprehension/ Production	33
Total	75

The second dimension of the psycholinguistic classification deals with the linguistic principles, referred to as the modality or instrumentality of the language. The modality poses the ways through which language items are presented. It includes verbal manifestation (oral and written forms) and non-verbal manifestation (pictorial devices). As Table 3 shows, in the input modification studies, the modality involved in the process of data-collection is presented both in

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verbal or oral and written forms and in non-verbal or pictorial forms. The modality of items is, however, mostly in the written form (63 out of 74). It is recommended that more attention be paid to the inclusion of oral and pictorial modality in line with the demands of task-based language testing. For example, in picture description tasks used in interaction-based researches (Mackey & Gass, 2005), a picture, following the modality of the written form, is orally described by the testee to another person. Similarly, in spot-the-differences tasks, the L2 learners are required to identify the differences between two or more pictures orally or in a written form. It is worthwhile mentioning that in such researches, the modality of the pictorial, written, and oral is carefully combined together to assess the L2 learners' language as naturally as possible to satisfy the demands of the current approaches to language testing, which is task-based and communicative at the same time.

Table 3. Frequency of Modality of Items in Input Modification Studies.

Modality of Items	Frequency
Oral	8
Written	63
Pictorial	3
Total	74

2. CONCLUSION

As noted in the introduction, language testing and language teaching are closely intertwined. Innovations in language teaching impact language testing approaches and vice versa. Language testing, therefore, has followed the trends in language teaching which have been, in turn, influenced by theories in linguistics and psychology (Farhady, et al 2003). This study critically examined the types of testing/assessment approaches and psycholinguistic processes employed in input modification studies. Tables 1, 2, and 3 demonstrate that the discreet-point approach was the prominently used approach in these studies. Among the psychological processes, furthermore, the predominant process was the comprehension/production process the L2 learners were involved when they were hired to perform as participants to provide data for the researchers trying to probe into the nature of second language acquisition.

As discussed above, on the other hand, in recent years a distinction has been created between testing and assessment. As Tables 1, 2, and 3 reveal the studies conducted in the field of input modification have employed testing techniques, mostly discreet-point and integrative, to measure the learners' ability in performing a task and they have completely ignored assessment methods including observation, portfolios, learner diaries and journals, self-assessment, outcome-based assessment, etc. Another worth-noticing point is that in input modification studies, communicative language testing (with the exception of a few) and task-based assessment have been completely neglected. In interaction-based researches such as input modification studies, data elicitation techniques include the task types such as picture description tasks, spot-the-difference tasks, jigsaw tasks, and consensus tasks, and consciousness-raising tasks. In picture description tasks, a participant is required to describe a picture to another. In performing such a task, the participants have to produce language in response to a pictorial stimulus as the modality of language. Also, in spot the difference task, participants are asked to find the differences between pictures (Mackey & Gass, 2005, p. 67). The other task types involve the production of language. Unfortunately, none of these tasks is used in input modification studies. Therefore, we draw the conclusion that language testing in input modification studies mainly goes around discreet-point and integrative techniques, and it does not occur in a natural realistic environment although there are a few exceptions in this regard. These exceptions include debates, thinking aloud and free recalling the context, which

are communicatively oriented. Apparently, language testing in input modification studies relies on testing methods and quantitative approaches to L2 studies and does not enjoy assessment methods and qualitative approaches. There are, to our knowledge, reasons why input modification studies do not utilize communicative task-based tests. The first reason is that in input modification studies, the term 'input' has received the momentum in contrast to 'output'. It is as if such studies should stick to the receptive dimensions of the language. Another reason is that input modification studies are part of the second language acquisition studies, in which the term 'acquisition' is limited or delimited to a receptive level. For instance, in many input modification studies, "acquisition means recognition" (Marefat & Moradian, 2008, p. 119) of the L2 forms and meanings, while acquisition can cover 'production' as well. In line with this argument, Carter (2001) contends that knowing the meaning of a word involves knowing "its spoken and written context of use, its patterns with words of related meaning as well as with its collocational patterns; its syntactic, pragmatic and discoursal patterns. It means knowing it actively and productively" (p. 43). Now, what we are in drastic need of is a reconsideration of this issue in input modification studies. Such studies should take into account this active, productive, and communicative use of the language in their data collection.

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