USING COGNITIVE COMPLEXITY ANALYSIS FOR THE GRADING AND SEQUENCING OF ISIXHOSA TASKS IN THE CURRICULUM DESIGN OF A COMMUNICATION COURSE FOR EDUCATION STUDENTS

André Steenkamp
Cape Peninsula University of Technology
Marianna Visser
University of Stellenbosch

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This article investigates the use of cognitive complexity analysis to inform the grading and sequencing of tasks for the purposes of curriculum design of a specific purposes isiXhosa course for student teachers. Two frameworks of cognitive complexity, that of Skehan and Robinson, are discussed, after which two communication tasks are analysed in terms of Robinson's framework.

INTRODUCTION

In a multilingual country like South Africa with its eleven official languages, multilingualism needs to be prioritised and promoted in order to advance optimal educational achievement in conjunction with social cohesion. In an effort to do so, the Western Cape Education Department launched its Language Transformation plan in 2006. In terms of the teaching of isiXhosa as a second language, this plan envisaged that all non-isiXhosa mother tongue-speaking learners in the province would be exposed to the language for a minimum of three years in the General Education and Training band (Grades R-9). The introduction of this plan underscored the already existing need for competent teachers for isiXhosa second additional language in the province. Given this increased demand, the Faculty of Education and Social Sciences at the Cape Peninsula University of Technology (CPUT) decided to convert its general purposes beginners' isiXhosa course to a specific purposes course. Further motivation for adopting a specific purposes curriculum came from the fact that the faculty also needs to equip all its students with beginner- to intermediate-level proficiency in isiXhosa in order to equip them with skills to communicate with primary school learners and their parents at a basic level on topics of concern.

It was further decided in the Faculty of Education and Social Sciences at CPUT to adopt a task-based approach to second language teaching and learning for this specific purposes course. , Over the past twenty years, the task-based approach to the teaching and learning of second languages has gained recognition internationally from applied linguists, language teaching researchers and teachers, and has been developed into an influential field of research. Task-based language teaching and learning (TBLT&L) is considered a valuable theoretical

approach in that its study informs course and syllabus design, as well as classroom methodology (Ellis, 2003, 2009; Nunan, 2004; Willis & Willis, 2007; Skehan, 2008).

To date, very little research has been conducted into the use of TBLT&L for isiXhosa. This paper will attempt to make a contribution in this field by demonstrating how cognitive complexity analysis can be used within a task-based approach for the purposes of grading and sequencing tasks in a specific purposes isiXhosa course for education students who may have to use isiXhosa as a second additional language in school contexts.

A crucial aspect of task-based second language teaching and syllabus design is that tasks must be graded and sequenced and presented to learners at the appropriate stage of their interlanguage development. Language acquisition is believed to take place by means of the development of a 'series of systems, known as interlanguages, which are gradually grammaticised and restructured' as new language features are added (Ellis, 2003: 29). Robinson (2001a, 2001b, 2005, 2007 and 2010) argues that, by manipulating the cognitive complexity of tasks, learners' attention can be directed to focusing on the complexity and accuracy of their output. This is believed to enhance acquisition. This article explores two different options for the grading and sequencing of tasks (that of Skehan and Robinson) and then illustrates, by means of the cognitive complexity analysis of two real-world target isiXhosa tasks for student teachers, how the framework proposed by Robinson (2005) can be used to inform decisions about the grading and sequencing of tasks for the purpose of syllabus and course design. The frameworks provided by Skehan and Robinson were selected because of the prominence of these two authors in literature about cognitive complexity in second language acquisition. Due to the limitations of space, the concepts *accuracy* and *fluency*, which typically are discussed together with *complexity*, are not investigated in this article. (For a discussion of these concepts see Housen & Kuiken, 2009; Larsen-Freeman, 2009; Palotti, 2009; and Skehan, 2009).

THE GRADING AND SEQUENCING OF TASKS

Nunan (1989: 10) defines the term 'task' as: '… a piece of classroom work which involves learners in comprehending, manipulating, producing or interacting in the target language while their attention is principally focused on meaning rather than form'. Real-world target tasks, also known as communication tasks, are tasks that greatly resemble the language that learners would be expected to perform in a real-world situation. From these real-world tasks, pedagogic (or 'learning') tasks are designed for classroom use. A crucial aspect of course and syllabus design is that tasks should be sequenced appropriately in order to ensure optimal acquisitional opportunities for learners. Ellis (2009: 241) states that 'tasks must be tailored to the proficiency levels of the students'. Various theories of language teaching and learning proposed in previous research have relied to a greater or lesser extent on the fact that the sequencing of learning material would be possible. According to Krashen's Input Hypothesis, learners should always be provided with $i + 1$ input, i.e. input which is just beyond the learners' current level of interlanguage development (Krashen, 1982). Teachers therefore need to be able to grade and sequence content and tasks in order to provide learners with input just beyond their current level.

Skehan (1996) investigated the sequencing of language learning tasks by invoking complexity criteria. He argued that task-sequencing is necessary in exploring the problem of learners

having to cope with form and meaning while learning a second language. He maintained that learners' attentional resources are challenged because tasks force them to pay attention to content in addition to form. Skehan argued that, if tasks can be sequenced 'on some principled criterion', it will give teachers an idea of how taxing they are on learners' attentional resources.

Robinson (2001a, 2001b) conducted research to determine the role of task sequencing in learners' production. He argued that the complexity of tasks has a considerable influence on the language that learners produce during tasks, which clearly indicates the importance of grading and sequencing. Criteria for the grading and sequencing of tasks proposed by Skehan will be discussed in some detail in Section 2.1. In Section 3, the cognitive complexity framework for the classification of tasks posited by Robinson is considered, while Section 4 demonstrates how LSP isiXhosa tasks for Education students can be analysed with regard to their complexity properties. Section 5 presents the conclusion of the paper and explores the central role of task-based research on complexity for syllabus design in isiXhosa.

SKEHAN'S FRAMEWORK FOR THE GRADING AND SEQUENCING OF TASKS

Skehan (1996: 52) posited a framework for the sequencing of tasks based on three factors. He proposed that, when sequencing tasks, the code complexity (formal lexical and morphosyntactic aspects) should be considered along with the cognitive complexity (of the content), as well as the amount of pressure under which learners will be expected to perform the task (communicative stress). Code complexity involves the difficulty and range of the linguistic properties relating to form, i.e. the syntax, morphology and lexis required for performing the task.

Cognitive complexity deals with the demands posed to second language learners concerning the content involved in completing the task. Skehan proposed that, for sequencing purposes, a distinction between cognitive processing and cognitive familiarity has to be drawn. Cognitive processing refers to the amount of real-time processing required for performing and completing the task, while cognitive familiarity deals with the extent to which learners are able to rely on known or existing content knowledge. Included in Skehan's notion of 'cognitive familiarity' would be the availability or not of recognisable schematic knowledge relating to the task topic, such as macrostructures in different genres.

The third factor in Skehan's framework is that of communicative stress. This deals with a number of factors that are not related to the language code or content, but rather play a role in determining the level of difficulty of a task (Skehan, 1996: 52). The time pressure under which learners have to perform a task, which could include the time learners have between receiving the instructions for a task and the actual performance, can play a role, as well as whether or not learners are given a time limit in which to perform the task. The modality of the task also needs to be taken into account when taking decisions about sequencing. This refers to whether the tasks will require of learners to speak or write, or to read or listen. It is generally accepted that, in real-time task performance, learners will find speaking more stressful than writing and listening more stressful than reading. The scale of a task can also play a role in the amount of communicative stress. Learners might feel more stress if more participants are involved in a task, and also if there are more different participant roles to cope with in performing the task. The stakes involved in completing a task can also contribute to

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communicative stress. Learners will experience more stress if it is considered important to complete a task, and even more if it is considered important to complete the task correctly, i.e. to arrive at the set outcome for the task. Communicative stress is, in the last instance, also influenced by the level of control learners have over different aspects of task performance. Skehan draws on the work of Pica *et al.* (1993) when stating that learners will perceive less communicative stress if they are allowed to negotiate the goals of the task, or if they are allowed to ask clarifying questions, giving them greater control over the content. Participants will also perceive less communicative stress if they are allowed to negotiate participant roles for the task.

Skehan states that the value of having a framework such as the above according to which tasks can be sequenced is that it will enable teachers to find an effective balance between attention to complexity, fluency and accuracy (1996: 53). He further argues that being able to sequence tasks properly will make it possible to free up learners' spare attentional capacity, which will make it possible for newly acquired structures to be incorporated into real-time language production. Skehan's framework is useful in that it formalises key considerations regarding the grading and sequencing of tasks, which could be valuable to language teaching practitioners and syllabus designers.

ROBINSON'S FRAMEWORK FOR THE GRADING AND SEQUENCING OF TASKS

Robinson's original framework (2001a, 2001b) is based on a three-fold distinction between 'cognitively defined task *complexity*, learner perceptions of task *difficulty*, and the interactive *conditions* under which tasks are performed' (2001b: 27). He argues that the process of sequencing should be based on decisions about the increasing or decreasing cognitively defined complexity of tasks. Robinson maintains that the terms 'difficulty' and 'complexity' refer to different kinds of influences on task performance. He further proposes that the factors influencing 'difficulty' and 'complexity' should be treated separately from factors influencing task 'conditions' (2001b: 29). He (2001a) refers to his framework, as set out below, as a 'triadic framework'.

TASK COMPLEXITY	TASK CONDITIONS	TASK DIFFICULTY
(Cognitive factors)	(Interactional factors)	(Learner factors)
a **Resource-directing**	**a** **Participation variables**	**a** **Affective variables**
e.g. +/- few elements	e.g. open/closed	e.g. motivation
+/- here-and-now	one-way/two-way	anxiety
+/- no reasoning demands	convergent/divergent	confidence
b **Resource-depleting**	**b** **Participant variables**	**b** **Ability variables**
e.g. +/- planning	e.g. gender	e.g. aptitude
+/- single task	familiarity	proficiency
+/- prior knowledge	power/solidarity	intelligence

Sequencing criteria   Methodological influences
Prospective decisions about task units   On-line decisions about repairs and groups

Table 1

Framework for grading and sequencing of tasks based on task complexity, condition and difficulty (Robinson, 2001b: 30)

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Robinson views **'task complexity'** as 'the result of the attentional, memory, reasoning, and other information processing demands imposed by the structure of the task on the language learner' (2001b: 29). This term is therefore similar in meaning to Skehan's notion of 'cognitive complexity' discussed in the previous section. Robinson distinguishes between two kinds of cognitive factors which could influence the complexity of a task, i.e. resource directing and resource depleting factors. **Resource directing factors** that could influence task complexity, for example, are the number of elements involved in the task input, the context (here-and-now or a different, perhaps lesser-known context) and also the amount of reasoning required to complete the task (e.g. whether mere requesting or transfer of information is required, or whether further reasoning is required, e.g. using information received to form and express an opinion). Factors such as these are seen as resource directing because they can direct learners' resources to certain language aspects which they can employ during task performance, e.g. using the present tense to perform a task set in a here-and-now context (Robinson, 2001a: 295). **Resource depleting factors** that influence task complexity, for example, are the amount of planning time learners are allowed, whether the performance involves one or more tasks, and whether learners have or are given prior knowledge of the task content. Tasks will be considered complex if these factors are seen as depleting learners' available cognitive resources. A task for which learners are given little or no planning time, which requires of learners to perform more than one task, and which is centred around a topic of which learners have little or no prior knowledge, will be considered complex because of the depleting effect such factors will have on learners' cognitive resources. Robinson is of the opinion that, with factors such as the above taken into consideration, it will be possible for teachers and course designers to design tasks that will free up learners' attention sufficiently for them to focus on the language needed during tasks, rather than on task content (2001b: 31).

In contrast with 'task complexity', which (as explained in the previous paragraph) Robinson views as being related to cognitive complexity resulting from demands put on learners' resources because of task structure and content, Robinson uses the term **'task difficulty'** to refer to the factors that learners bring to the task (2001b: 31). He distinguishes between affective variables (factors that may influence learners' performance temporarily, e.g. motivation, anxiety and confidence), and ability variables (more constant or inherent factors that learners bring with them to the task, e.g. learners' aptitude, proficiency and intelligence).

The third set of factors in Robinson's framework is that of **task conditions**. These are factors influenced by the interactive demands of tasks. Robinson (2001b: 32) distinguishes between **participation variables** and **participant variables**. Under participation variables he includes factors such as the task outcome, i.e. whether the task is considered closed or open. The direction of the information flow, whether one-way or two-way, as well as the communication goal, whether convergent or divergent, are also considered to be participation variables. 'Participant variables' refers to factors such as learners' gender and their familiarity with other group members and with the role they have to assume for performing the task, e.g. requester or supplier of information.

As is clear from the diagram above of Robinson's framework, factors related to task conditions and task difficulty influence teachers' methodological decisions, or what Robinson calls 'on-line decisions about pairs and groups' (2001b: 30). By this he refers to decisions that teachers have to take in class about task performance, e.g. which roles will be assigned to which learners, based, for example, on the gender of the learners (participant variables) and the motivation (affective variables) of the different participants. The cognitive factors, which

determine task complexity, comprise what is important for decisions about the grading and sequencing of tasks. In support of this statement, Robinson points out that factors influencing task difficulty, such as motivation, anxiety and confidence, are difficult or impossible to determine before the actual task performance starts.

Robinson (2001b: 33) points out that interactions between the three sets of factors in his framework are to be expected. Task complexity, as determined by e.g. resource directing factors, will probably have an effect on task difficulty, e.g. affective factors. Cognitive factors such as a large number of elements involved in a task, combined perhaps with high levels of reasoning required, will cause learners to perceive a task as more difficult, because of possible greater levels of anxiety and reduced confidence. Exactly what the influence of differences in one of the three sets of factors will be on the other sets of factors cannot be predicted with any certainty. Robinson points out that further research is necessary to determine the exact nature of interactions between the three different sets of factors.

The framework proposed by Robinson is more comprehensive than that of Skehan discussed above and is likely to lead to greater accuracy in the grading and sequencing of tasks. Despite the fact that existing research makes it impossible to specify the interaction that could be found between the three sets of factors, Robinson's motivation of the importance of determining the cognitive factors involved in tasks for purposes of grading and sequencing, makes his framework a viable option for this study.

Robinson (2007: 17) explains that 'cognitive' factors are those task characteristics that can influence the allocation of learners' available 'attention, memory, reasoning and other processing resources'. In his triadic framework (2001a&b) Robinson distinguishes between two types of factors that influence the cognitive complexity of tasks, namely resource-directing and resource-depleting factors, the latter termed 'resource-dispersing factors' in Robinson (2005) and Robinson (2007). Robinson (2005) identifies the following task characteristic options that are seen as resource directing variables: (1) the task requires of learner to refer to events happening in the present time, in a context shared with other task participants, as opposed to past or future events that will take place elsewhere; (2) the task has only a few distinct elements, as opposed to many similar elements that are difficult to identify and distinguish; and (3) the task involves the simple transference of information, as opposed to reasoning being required about the information.

The other set of cognitive task characteristics that Robinson (2005) posits as being important for task grading and sequencing is the so-called resource-dispersing task dimensions. Resource-dispersing task features include the following variables: (1) learners are given time to plan prior to task performance, or not; (2) learners are given or already have background knowledge required to perform the task, as opposed to receiving or having no prior knowledge when expected to perform the task; and (3) the task requires of learners to do only one thing (e.g. speaking), as opposed to requiring more than one thing while performing the task (e.g. planning and speaking).

Robinson (2005) argues that the above-mentioned resource-directing and resource-dispersing variables, with all the possible variations in task characteristics, will have varying effects on the cognitive complexity of tasks. The table below illustrates different dimensions of the cognitive complexity of task features:

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-few elements -no reasoning -here-and-now +planning +prior knowledge +single task 3 LOW PERFORMATIVE AND HIGH DEVELOPMENTAL COMPLEXITY	-few elements -no reasoning -here-and-now -planning -prior knowledge -single task 4 HIGH PERFORMATIVE AND HIGH DEVELOPMENTAL COMPLEXITY
+few elements +no reasoning +here-and-now +planning +prior knowledge +single task 1 LOW PERFORMATIVE AND LOW DEVELOPMENTAL COMPLEXITY	+few elements +no reasoning +here-and-now -planning -prior knowledge -single task 2 HIGH PERFORMATIVE AND LOW DEVELOPMENTAL COMPLEXITY

Table 2
Resource directing (developmental) and resource-dispersing (performative) dimensions of complexity and their implications for task sequencing (Robinson, 2005: 8)

From the above table it can be deducted that, if a task consists of few elements or even a single element, if it requires no reasoning, and if it is situated in the present time and the current location of the task participants, this task would be seen as not being cognitively complex. Furthermore, if the task makes provision for planning time, if it utilises participants' prior knowledge, and if it requires of learners to perform a single type of activity during task performance, the level of cognitive complexity would be kept low. By changing these variables, one at a time or more than one at a time, the cognitive complexity of the task will gradually increase. In this manner Robinson's framework makes it possible to grade and sequence tasks according to their cognitive complexity, expressed in terms of resource directing and resource dispersing task features.

Tasks with lower cognitive complexity, i.e. tasks that would be classified as quadrant 1 tasks according to Robinson's framework above, would be performed first, after which the cognitive complexity can be increased gradually, moving through the different quadrants to quadrant 4. Robinson (2007) points out that resource-dispersing variables are increased first, e.g. if a single task is to be performed, with prior knowledge and planning time provided, the cognitive complexity can be increased by changing one of the resource-dispersing variables, e.g. a single task with prior knowledge provided, but without time for planning. This is done with the aim of allowing time to develop and consolidate learners' current interlanguage system. Once cognitive complexity has been increased by changing the resource-dispersing variables, the resource-directing variables can be adapted one by one to facilitate interlanguage development.

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According to Robinson's theory of cognitive complexity, increased cognitive complexity along the lines of resource-directing variables should create opportunities for learners to pay attention to the accuracy and complexity of their output. By providing learners with tasks that consist of more or many similar elements that need to be distinguished, or that require reasoning or that require learners to refer to events that happened in a different time and physical setting, the learners will be forced to pay more attention to the accuracy and complexity of the language they use. This, in turn, will lead to better noticing of relevant structures in the task input, which in turn will lead to a greater uptake of forms emphasised by means of focusing on form activities before, during or after task performance (Robinson, 2007).

EQUENCING TASKS ACCORDING TO COGNITIVE COMPLEXITY

The grading and sequencing of tasks is an important facet of second language curriculum design using 'task' as the primary unit of design and analysis. Robinson's (2001b) triadic framework for the grading and sequencing of tasks based on task complexity, task conditions and task difficulty was reviewed in Section 2.2 above. It was explained that, in Robinson's framework, task conditions refer to interactional factors determined either by participation variables (e.g. open vs closed tasks, convergent vs divergent task goals, and one-way vs two-way communication), or participant variables (e.g. gender familiarity and power or solidarity). The term 'task difficulty' was explained as referring to various learner factors, i.e. affective variables (including motivation, anxiety and confidence) and ability variables (e.g. aptitude, proficiency and intelligence). Factors related to task conditions and task difficulty are considered by Robinson to be factors that influence decisions about methodology and also online decisions that the teacher has to take about how the interplay of different learner-related factors can be optimised to enhance classroom task performance. In a later publication, Robinson (2007: 22) states that task complexity is 'the sole basis of pedagogic task sequencing'. It is for this reason that this article focuses on those factors that influence the cognitive complexity of tasks.

USING ROBINSON'S FRAMEWORK TO GRADE AND SEQUENCE ISIXHOSA REAL-WORLD TARGET TASKS FOR STUDENT TEACHERS

A questionnaire was sent to a number of schools in the Cape Town metropolitan area to determine the communication needs of Afrikaans- and English-speaking primary school teachers who have isiXhosa-speaking learners in their classes. Teachers indicated, amongst other things, that they would like to be able to discipline and motivate learners in isiXhosa and talk to learners who are distressed or not feeling well. A number of real-world target tasks representative of teacher-student and teacher-parent communication themes were constructed from these topics. For the purposes of the CPUT research project, these tasks were analysed with the use of Robinson's framework to determine their cognitive complexity. Two of these tasks are presented in the section below and analysed with the aim of determining and comparing their cognitive complexity for the purposes of this article. Real-world target tasks are tasks that closely resemble the tasks that second language learners will be expected to perform in the real world in their second language. Pedagogic (or learning) tasks for classroom use are derived from these tasks. The analyses of the complexity of the real-world

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tasks executed in terms of Robinson's framework and presented in this section, serve as input for the design of pedagogic tasks for the teaching of isiXhosa tasks, providing a basis for the grading and sequencing of the pedagogic tasks.

The English translations (in italics) of the isiXhosa sentences in the tasks below present approximate meanings of the isiXhosa and are provided for readers who do not understand isiXhosa, but the English meanings are insubstantial to the task analyses and related discussions. The isiXhosa used in the tasks is representative of standard isiXhosa. Issues such as code-switching and cultural aspects that influence language are not addressed in this paper as these, being socio-linguistic issues, fall outside the scope of this article.

TASK 1

After experiencing some problems with discipline earlier in the week, your class has behaved very well for the whole day. Tell the class that you have noticed their good behaviour, that you are proud of them and that you will consider a special treat (e.g. an extra long story reading session, and less or no homework for the next day) if they keep up the good behaviour. The learners express their delight and ask for more details of the treat you mentioned, e.g. which story you plan to read, etc.

T = Teacher
L1, L2, L3 = Different learners

T: (1) Class, ingaba niyakhumbula ukuba kwenzekeni ngoMvulo?
(1) Class, do you remember what happened on Monday?

Class: (2) Hayi, mfundisi.
(2) No, sir.

T: (3) Anisakhumbuli? (4) Cingani. (5) Nenza ntoni ngekhefu lokuqala ngoMvulo?
(3) Don't you remember? (4) Think back. (5) What did you do during first break on Monday?

L1: (6) Ndiyakhumbula! (7) Saye sahlala egumbini.
(6) I remember! (7) We had to stay in during break.

T: (8) Nantso ke. (9) Nenze ingxolo enkulu asabi nakho ukwenza umsebenzi. (10) Ndaye ndabona ukuba ndinigcine. (11) Ndiye ndaqaphela izolo nanamhlanje ukuba niziphethe ngendlela entle. (12) Ingxolo iye yanqongophala njengokuba nisenza umsebenzi wenu wesikolo. (13) Koko ndinqwenela ukukubona. (14) Ndiyavuya ukunibona nimamela.
(8) That's it. (9) You were making such a lot of noise that we couldn't get any work done. (10) So I had to keep you in. (11) I noticed yesterday and also today that you have been behaving a lot better. (12) There is a lot less talking going on while you work, so you actually get your work done. (13) That is what I like to see. (14) I'm very pleased that you are co-operating so well.

Class: (15) Ewe, titshala.
(15) Yes, titshala.

T: (16) Ukuba niza kuhlala nigcine olu cwangco iveki yonke, ndiza kuzidla ngani. (17) Nicinga ukuba ningakwenza oko? *(16) If you keep up this good behaviour for the rest of the week, I'll be really very proud of you. (17) Do you think you could do that?*

Class: (18) Ewe, mfundisi!
        (18) Yes, sir!

L2:   (19) Ewe singakwenza oko.
        (19) Of course we can do that.

T: (20) Ndingenza isivumelwano nani?
        (20) Can I make a deal with you?

Class: (21) Ewe, mfundisi!
        (21) Yes, sir!

T: (22) Ukuba ningahlala nizolile de kube nguLwesihlanu, ndiza kuninika into. (23) Kunganjani ukuba sibe neyure yonke yamabali ngoLwesihlanu. (24) Ingaba sisiqalo esihle eso sempela veki.
        (22) Okay, if you keep up this good behaviour until Friday, I'll give you a treat. (23) How about a whole hour of story time on Friday? (24) That should be a good start to the weekend!

Class: (25) Ewe, iyure yonke!
        (25) Yes! A whole hour!

L1:   (26) Singeza neencwadi zethu esizithandayo ukuze usifundele zona, mfundisi? *(26) Can we bring our favourite books so that you can read them to us, sir?*

T: (27) Liqhinga elihle elo. (28) Ningeza neencwadi zenu. (29) Ndiza kuthi ndifunde ezinye zazo, niza kuthi nani nifunde omnye emva komnye.
        (27) Yes, that sounds like a good idea. (28) You can all bring books. (29) I'll read some, and you can also take turns to read for us.

Class: (30) Ewe, Mfundisi.
        (30) Yes, sir!

T: (31) Kwakuhle oko. (32) Ndiyathemba ningakwenza oku. (33) Masiqaliseni. (34) Sele iyintsimbi yeshumi. (35) Kufuneka siqale ngezibalo kuqala. (36) Khuphani iincwadi zenu.
        (31) Okay, great. (32) I'm sure you can do it. (33) Now let's get back to work. (34) It's ten o'clock already. (35) We have to start with Maths now. (36) Come, quickly take out your books.

COGNITIVE COMPLEXITY ANALYSIS

Analysed in terms of Robinson's (2005) framework for task analysis, this task displays the following characteristics:

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- [+ few elements]:

A few references to time and space are found in this task. Because of the low number and frequency of references and the fact that these references are relatively non-essential for the successful completion of the task, this task is classified as consisting of few elements. Examples of temporal references are found in sentences such as the following: sentence 1 and 5 (**ngoMvulo** / 'on Monday'), sentence 11 (**izolo nanamhlanje** /'yesterday and today'), and sentence 34 (**sele iyintsimbi yeshumi** / 'it's ten o'clock already'). A spatial reference is found in sentence 7: (**egumbini** / 'in class').

- [-no reasoning]:

This task is classified as [–no reasoning] because evidence is found of how the teacher reasons with learners about their behaviour and the reward that he intends giving for good conduct. Examples of reasoning are found in sentences 9-10, 16-17, and 22. In sentences 9 and 10 the teacher reasons with the learners about why they were punished. In sentences 16 and 17 the teacher reasons with the learners about good behaviour on their part, while in sentence 22 the teacher reasons with the learners about how their good behaviour will be rewarded.

- [-here-and-now]:

Most of this task is performed in the present tense, with some references to past and future events – hence the classification of [–here-and-now]. Examples of references to past and future events are found in sentences such as the following: 1, 5, 7, 9-11.

- [+planning]:

For the purposes of this article it is assumed that participants will be given planning time prior to task performance. The participant in the role of the teacher will have to plan which behaviour of the learners must be punished and how he or she will do this. The teacher will also have to plan which reward would be suitable for the learners.

- [+prior knowledge]:

Participants do not need specific knowledge in order to perform this task successfully. The task content is general in nature and it can reasonably be assumed that student teachers will have the prior knowledge needed to perform this task, e.g. how to address a group of learners about their behaviour. Because of the general nature of the task topic and given the fact that the participants are student teachers who are familiar with the communication setting, this task is classified as [+prior knowledge]. Seen on a continuum, the limited amount and general nature of the prior knowledge needed is such that it will not contribute to the cognitive complexity of this task.

- [-single task]:

This task requires of participants to perform multiple tasks. The participant in the role of the teacher will have to plan how to motivate learners to maintain their good behaviour while speaking, and also how to raise learners' curiosity by initially not giving away too much information about the learners' reward.

Based on the above discussion, this task can be classified as being in quadrant 3 of Robinsons' framework, with the exception of the characteristics [+ few elements] and [–single task]. According to Robinson's framework of cognitive complexity, this task will provide learners

with high developmental and low performative potential. Because of the characteristic [+few elements] the developmental potential of this task will be lower than that of typical quadrant 3 tasks, while the performative potential of this task will be slightly higher than that of typical quadrant 3 tasks, because participants will be required to perform multiple tasks.

TASK 2

You notice that a learner is looking upset or is crying. Walk to the learner's desk and ask the learner what is wrong. Respond sympathetically to the learner's explanation of why he or she is feeling bad and make suggestions about how the problem can be alleviated.

T = Teacher
L = Learner

T: (1) Edward, yintoni undonakele? (2) Kutheni ulila nje?
   (1) Edward, what's wrong? (2) Why are you crying?

L: (3) Akukho nto, Titshala.
   (3) It's nothing, Miss.

T: (4) Awusoze ukhale nje kanti akukho nto ikutyayo.
   (4) Well, you wouldn't be crying if nothing was bothering you.

L: (5) Yinja yam, Titshala. (6) Ndicinga ukuba iza kufa.
   (5) It's my dog, Miss. (6) I think he's going to die.

T: (7) Kutheni ucinga njalo? (8) Kwenzeke ntoni?
   (7) Why do you think that? (9) What happened?

L: (10) Izolo ebusuku inja yam uMax iye yalwa kunye nenye inja. (11) Bekukho igazi elininzi. (12) Utata wam uye wathi laa nja imlume uMax kwiindawo ezininzi
   (10) Last night my dog, Max, was in a fight with another dog. (11) There was a lot of blood. (12) My father said the other dog bit Max in several places.

T: (13) Uye wamsa na kugqirha wezinja?
   (13) Did you take him to the vet?

L: (14) Bekusele kuhlwile izolo, Titshala. (15) Utata uye wazama ukunqanda ukopha kodwa kuye kwafuneka simshiye endlwini yakhe xa sisiya kulala. (16) Bendikhathazekile khange ndikwazi ukulala, titshala. (17) Ndiye ndavusa umama wam wathi kufuneka simzise uMax ekhitshini. (18) Ndiye ndalala naye kwelo gumbi, titshala. (19) Ebegula kakhulu ngale ntsasa ngoku ndiza esikolweni.
   (14) It was too late last night, Miss. (15) My father tried to stop the bleeding but we had to leave him in his kennel when we went to bed. (16) I was so upset I couldn't sleep, Miss. (17) So I woke up my mother and she said we could bring Max into the kitchen. (18) I slept with him in the kitchen, Miss. (19) He was very sick this morning when I came to school.

T: (20) Ngoku ingaba utata wakho uye wamsa kugqirha wezinja ngale ntsasa?
(21) So did your father take him to the vet this morning?

L: (22) Umama wam uye wamsa emva kokuba eshiye mna apha esikolweni, Titshala. (23) Inokuba ufile ngoku. (walila kwakhona)
(22) My mother took him after she dropped me off at school, Miss. (23) He might be dead by now. (crying again)

T: (24) Hayi, Edward. (25) Ukuba uye wakwazi ukuphila izolo, ndiyathemba ukuba ugqirha wezinja uza kumlungisa. (26) Ugqirha wezinja uza kumthunga amphe namayeza.
(24) No, Edward. (25) If he survived the night, then I'm sure the vet will fix him up. (26) The vet will give him some stitches and some medicine.

L: (27) Andikwazi ukulinda kude kufike le mva kwemini, titshala. (alile kwakhona) (28) Inokuba sele efile.
(27) I can't wait until this afternoon, Miss. (more crying) (28) He might be dead already.

T: (29) Kulungile, masenze icebo. (30) Masimtsalele umnxeba umama ngexesha lekhefu.
(29) Okay, let's make a plan. (30) Let's phone her during break time.

L: (31) Singayenza loo nto, Titshala?
(31) Can we do that, Miss?

T: (32) Ewe, xa intsimbi ikhala ngexesha lekhefu kufuneka sihambe kunye ukuya kwi-ofisi ingaphambili. (33) Siza kukwazi ukufowunela umama wakho sive ukuba ingaba akukho ndaba na.
(32) Yes, when the bell rings for break you come with me to the front office. (33) Then we can phone your mother and hear if there is any news.

L: (34) Nyhani, Titshala?
(34) Really, Miss?

T: (35) Ewe, Edward.
(35) Yes, Edward.

L: (36) Ndiyabulela, Titshala.
(36) Oh thank you, Miss!

T: (37) Nantso ke into efunekayo, ungaphinde ulile ngoku. Kulungile?
(37) There you go, no more tears now. Okay?

L: (38) Kulungile, Titshala. (39) Ndiyabulela, Titshala.
(38) Okay, Miss. (39) Thank you, Miss.

T: (40) Wamkelekile.
(40) You're welcome.

COGNITIVE COMPLEXITY ANALYSIS

Analysed in terms of Robinson's (2005) framework for task analysis, this task displays the following characteristics:

- [+ few elements]:
Because the references to time and space in this task are few and relatively non-essential for the successful performance of this task, it is classified as [+ few elements]. Temporal references occur in sentences such as the following: 10 (**izolo ebusuku** / 'last night') and 19 (**ngale ntsasa** / 'this morning'). Examples of spatial references are found in sentences such as the following: 17 (**ekhitshini** / 'in the kitchen') and 32 (**kwi-ofisi ingaphambili** / 'to the front office').

- [- no reasoning]:
This task requires of the teacher to reason with the learner. Examples of reasoning are found in sentences 4 and 25.

- [- here-and-now]:
The participants in this task are required to refer to events that occurred at a different time and in a different physical setting. The learner has to describe events that took place at his home the previous night and the morning before school. Examples of the past tense are found in sentences 10-22. References to future events are found in sentences such as 6 and 26.

- [+ planning]:
For the purposes of this article it is assumed that learners will be given planning time prior to task performance. The participant in the role of the teacher will need to plan how to approach the learner who is not looking well. He or she would also have to plan how to respond to the learner's stated problem. The participant in the role of the learner will have to plan which health or personal problem he or she is going to mention to the teacher prior to task performance. This participant will also have to plan which details regarding the problem should be revealed.

- [- prior knowledge]:
Participants are not provided with any background knowledge in the task instruction, e.g. why the learner is not feeling well, which suggestions to make in order to solve the learner's problem, or how to reassure the learner. Although the participants, as student teachers, will bring some prior knowledge with them to the task, e.g. how to reassure a learner who is upset, the number and the wide range of topics that the learner could raise in this conversation is such that the participant in the role of the teacher may experience great demands being made on his or her attentional resources. For this reason a classification of [- prior knowledge] is made for this task.

- [- single task]:
This task requires of task participants to perform multiple tasks. While speaking, the participant in the role of the teacher will have to plan ahead, for example, how to encourage the learner to tell him or her what is wrong; how to reassure the learner; and what to suggest to the learner about solving his problem. The participant taking the role of the learner will have to plan ahead regarding issues such as the following: while speaking,

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how not to provide all the information at once; which information to provide about the dog's injuries; and how to convey feeling concerned about the dog's wellbeing.

Given the above characteristics, this task can be classified as most resembling quadrant 4 tasks in Robinson's framework. This implies that the above task will provide learning opportunities exhibiting high performative and also high developmental complexity. Because of the characteristics labled [+ few elements] and [+ planning], the developmental and performative complexity of this task will be slightly lower that those of typical quadrant 4 tasks.

In terms of Robinson's framework for task complexity, Task 2 above (classified as a quadrant 4 task) would be graded as being more challenging than Task 1 above (classified as a quadrant 3 task). For purposes of syllabus design, Task 2 above would therefore be sequenced for use after Task 1. For syllabus design purposes, the communication tasks can be further analysed to determine their syntactic complexity and to identify salient language structures for the purpose of focusing on form. Due to limited space, these types of analysis will not be illustrated here.

CONCLUSION

This article addressed the problem of characterising the cognitive complexity of communication tasks for a specific purposes isiXhosa syllabus for primary school education students and teachers, employing Robinson's Cognition hypothesis. This hypothesis, which was invoked by Robinson in positing the triadic componential framework for task complexity, relates to the crucial question of how pedagogic (or learning) tasks derived from real-world communication tasks should be graded and sequenced in a task-based syllabus to facilitate optimal interlanguage development. The examples of the analysed isiXhosa communication tasks demonstrated a range of complexity features in the respective segments identified for the tasks.

A principled understanding of task complexity thus underlies key decisions as regards the design of learning tasks, and their grading and sequencing in designing a task-based syllabus that facilitates the continuous development of target language complexity, increasingly conforming to target language level. It follows from the analyses of the isiXhosa communication tasks above that the segments characterised as being less cognitively complex will be associated with learning tasks that will be graded as less complex and sequenced earlier than the learning tasks associated with the communication (target) tasks that are characterised as more complex in the analyses presented above, and which will be sequenced relatively later in a task-based syllabus.

In arguing that task complexity constitutes a central consideration in the grading and sequencing of tasks, it is also important to bear in mind that the range of other factors, such as task difficulty discussed in Section 2 above, task repetition and frequency, needs to be examined in order to determine how learners' complexity, accuracy and fluency in the target communication tasks can best be advanced. For this purpose, task-based theory provides a rich framework.

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BIOGRAPHICAL NOTE

Dr André Steenkamp, e-mail address: steenkampa@cput.ac.za
Faculty of Education and Social Sciences
Mowbray Campus, Cape Peninsula University of Technology
Research interests: Focus on form in task-based language teaching and learning, cognitive complexity in task-based language teaching and learning, second language methodology, language for specific purposes

Prof Marianna Visser, e-mail address: mwv@sun.ac.za
African Languages Department, Stellenbosch University
Research interests: Formal lexical semantics and morphosyntax, syntactic development in second language acquisition, complexity in task-based language learning and teaching, appraisal and evaluation in discourse analysis