

TEACHING ROUTINE *RADIOTELEPHONY* LANGUAGE STRUCTURES TO ROMANIAN AIR FORCE CADETS – LIST OF TYPICAL ERRORS BASED ON TRADITIONAL LISTENING GAP-FILL EXERCISES

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Abstract: *The main focus of the article is on the quantitative proportion and distribution of routine RT adult learner errors while learning aviation English as ESP. The analysis covers two phases of flight: taxiing and route clearances. The corpus is made out of undergraduate (Air Force cadet) classroom-produced materials featuring rather traditional gap-fill exercises. The main purpose is to identify areas of difficulty and lay the groundwork for further quantitative and qualitative approaches on the specific challenges affecting Romanian learners studying aviation English as EPP. Another line of investigation seeks to differentiate L1-based mistakes against the difficulties in student listening proficiency and to establish when functional literacy issues affect learner results.*

Keywords: *ESP/EPP, radiotelephony, functional literacy, RT vocabulary, error analysis*

1. THEORETICAL BACKGROUND AND PURPOSE

Error analysis is seen as one of the cornerstones of student/adult learner ability enhancement in second language acquisition [1, 2, 3]. Much in the same vein, the present article is the third step in a series of researches (see also [4] and [5]) meant to analyze the specific errors made by Romanian users of aviation English from the perspective of their quantitative distribution around topics, considering criteria such as L1 interference in foreign language acquisition (FLA) or functional literacy, as well as other qualitative interpretation of these findings. The main goal of the series is to address the common difficulties that Romanian users of ESL as EPP in the aviation industry come across in their learning process. Just like with our previous publications, we consider this contribution to be a pre-research experiment within the framework of a research project under which further analyses could be conducted (see Acknowledgement). This is also to say that to avoid unnecessary repetition, for further background information on our theoretical sources and the full display of concepts and researches that laid the foundation of the entire project, we kindly invite the reader to consider our previous work [4, 5]).

As such, this article focuses in particular on routine RT phraseology as defined by ICAO, seeking to count main difficulties as they result from the topic-centered organization of errors in Romanian Air Force cadet classroom-produced final exam simulation tests. The two main study topics are focused on the language structures that make up the common ground of routine exchanges about route clearances and taxiing.

The methodology is based on seminal contemporary literature in the field [6, 7].

2. METHODOLOGY

For this limited experiment, three mixed-ability undergraduate student groups' classroom produced materials were subjected to analysis. The learners' approval for their work to be used under the protection of anonymity was asked and received at the beginning of the respective courses. The military cadet groups involved belonged to three air traffic management-oriented classes counting 12, 11 and 10 undergraduates, respectively. For privacy concerns, we will refer to them as A, B and C, respectively. The exact same recording was used with compeer groups A and B for the exact same task, therefore all 23 answer sheets collected refer to the exact same context delivered in identical conditions (including the technical assets used in class, the answer forms etc.). This apparent disparity in the distribution of the material was also intended as a control mechanism: one of the purposes was to check whether with a larger number of learners the percentages and the frequency of the same mistakes was to remain relatively consistent. Since the analysis below demonstrates that the percentages and error specificities remained largely stable with larger numbers, a different task and recording was used in the case of group C, based on the thus documented assumption that error quantity and distribution can be taken as relevant.

The use of specialist vocabulary proficiency as well as specific syntax was tested by means of a traditional listening gap-fill exercise based on dialogues in Fiona Robertson's classic coursebook *Airpeak* [8]. They involve limited, standardized but lifelike routine RT language contexts. The purpose was to check the overall student passive competence in understanding the language structures of standard phraseology, with a focus on the pragmatics and semantics of the particular morphology and syntax that affect its pragmatic value (*i.e.*, the existential correspondence between language and action or in other words, the effect of language over actual existence in its professional aspect). But while the purpose of the practice was the same, the scope differed from one group to another: specifically, with groups A and B, the exercise covered the understanding of taxiing routines, while with group C, it was based on typical exchanges exemplifying route clearance routines. The class activities turned into the corpus for this study were part of the final test simulation reinforcement exercises, and hence all groups had studied almost for a full semester the routine and non-routine standard phraseology recommended for the first five phases of flight in the sequence of seven (namely pre-flight, taxiing, takeoff, climb and cruise).

For further methodological details, see the first article in the series dedicated to the specific errors made by Romanian EFL students [4].

3. CORPUS ANALYSIS

As shown above, the actual corpus consists of 44 student written contributions and the corresponding 33 one-on-one Professor feedback sheets, distributed as follows:

- 23 answer sheets (12 A + 11 B);
- 10 answer sheets (10 C).

The distribution above resulted in 2 „error-collection” tables, one for each group. All cadets were of perfectly similar age groups, qualifications and years of study. The exercise comprised 20 gaps per sheet (*i.e.*, per test) for each of the groups, resulting in a total of 660 answers received from the cadets in all three groups (ABC): 240 from group A, 220 from group B and 200 from group C.

The following analysis will detail the errors in the sense of error quantification, topic-related distribution and proportions, according to the criteria set in the previous sections (see *1. Introduction: Theoretical Background and Purpose*).

3.1 A list of typical errors in understanding taxiing routine exchanges (groups A and B).

Student answers turned out as described in Table 1. Formally, each cadet was assigned a number and a group designator (A or B) and a number (1, 2, 3...). We have abbreviated General English (or plain English) as Gen.E. and Aviation English as Av.E. and we have regrouped error distribution around four main criteria: listening and writing proficiency versus L1 interference, and random versus logical association of phonetic reconstruction (a phenomenon occurring as an intently taught last resort solution or “backup plan” whenever the confident phonetic perception is not possible). The last pair of opposites, to which we added the option we call “zero reconstruction” to describe situations where no attempt to “guess around” the auditory input was made, are meant to hint at the degree of functional literacy of the learners and their ability to use it in the given specific contexts. The tables only show the errors in student answers (column 2) and the correct corresponding structure (column 3), and “error type” according to the said criteria, to facilitate the observation of error reoccurrence. Asterisks mark relevant remarks able to suggest the classification and distribution of mistakes: for example, under A1.1, the asterisk helped exclude L1 interference in matters of syntax (the English noun phrase) under General English.

Table 1. Groups A and B – Taxiing (routine).

Std. code	Errors	Answers (based on answer key)	Error Type
A1	1. [report] ...	[report] vacated *but [runway vacated] OK	A1.1. zero reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (syntax)
A2	1. [request] ... [runway]	[request] cross [runway]	A2.1. zero reconstruction Av.E. L1 interference (syntax)
	2. outshort	hold short *but [holding short] OK	A2.2. random reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (lexicology, syntax)
	3. [runway] ...	[runway] vacated *but [report vacated] OK	A2.3. zero reconstruction Gen.E.: listening proficiency
A3	1. holding ...	hold [short] *but [holding short] OK	A3.1. random+zero reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (lexicology, syntax)
A4	1. now	[runway] 29L	A4.1. random reconstruction Gen.E.: listening proficiency
A5	1. Runway	runway <i>capitalized throughout the test</i>	A5.1. logical reconstruction Gen.E.: writing proficiency (spelling of nouns) Av.E.: writing proficiency (spelling of basic vocabulary)
	2. runaway	runway <i>hesitation throughout the test (runaway used once, corrected for the rest of the entries)</i>	A5.2. random reconstruction Av.E.: writing proficiency (spelling of basic vocabulary), L1 interference (lexicology)

Std. code	Errors	Answers (based on answer key)	Error Type
A6	1. [report] ...	[report] vacated <i>1st occurrence</i>	A6.1. zero reconstruction Gen.E.: listening proficiency / L1 interference (syntax) Av.E.: L1 interference (syntax)
	2. [runway]...	[runway] vacated <i>2nd occurrence of vacated in 2 different contexts</i>	A6.2. zero reconstruction Gen.E.: listening proficiency / L1 interference (syntax)
A7	X	X	No error.
A8	1. ...	runway	A8.1. zero reconstruction Av.E.: L1 interference (lexicology)
	2. [request] ... [runway]	[request] cross [runway]	A8.2. zero reconstruction Av.E.: L1 interference (syntax)
	3. [report] ...	[report] vacated <i>*but [runway vacated] OK</i>	A8.3. zero reconstruction Gen.E.: listening proficiency / L1 interference (syntax) Av.E.: L1 interference (syntax)
A9	1. [report] ...	[report] vacated <i>1st occurrence</i>	A9.1. zero reconstruction Gen.E.: listening proficiency / L1 interference (syntax) Av.E.: L1 interference (syntax)
	2. [runway] promoted	[runway] vacated <i>2nd occurrence of vacated in 2 different contexts</i>	A9.2. random reconstruction Gen.E.: listening proficiency / L1 interference (syntax)
A10	1. runaway	runway <i>confusion occurs throughout the test</i>	A10.1. random reconstruction Av.E.: writing proficiency (spelling of basic vocabulary), L1 interference (lexicology)
	2. vacated	vacated <i>confusion occurs throughout the test</i>	A10.2. random reconstruction Av.E.: writing proficiency, <i>spelling (copied?)</i>
A11	1. [request] cros [runway]	[request] cross [runway]	A11.1. logical reconstruction Gen.E.: writing proficiency (spelling of verb CROSS) Av.E.: writing proficiency (spelling of basic vocabulary)
A12	X	X	No error.
B1	1. outsure	hold short	B1.1. random reconstruction Gen.E.: listening proficiency
	2. holding sure	holding short	B1.2. random reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (lexicology, syntax)
	3. [report] ...	[report] vacated <i>*but [runway vacated] OK</i>	B1.3. zero reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (syntax)
B2	1. [request] across [runway]	[request] cross [runway]	B2.1. random reconstruction Gen.E.: listening proficiency (lexicology, grammatical category within the same word family) Av.E.: L1 interference (syntax)
	2. off shore	hold short <i>*but [holding short] OK</i>	B2.2. random reconstruction Gen.E.: listening proficiency
	3. unpropagated	[report] vacated	B3.2. random reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (syntax)
	4. [runway] indicated	[runway] vacated	B3.4. random reconstruction Gen.E.: listening proficiency

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Std. code	Errors	Answers (based on answer key)	Error Type
B3	1. [request] crossway [runway]	[request] cross [runway]	B2.1. logical reconstruction Gen.E.: listening proficiency
	2. I'll sure	hold short <i>*but [holding short] OK</i>	B3.2. random reconstruction Gen.E.: listening proficiency
B4	1. approching	approaching	B4.1. logical reconstruction Gen.E.: writing proficiency (spelling, slip of the pen?)
	2. [request] ... [runway]	[request] cross [runway]	B4.2. zero reconstruction Av.E.: L1 interference (syntax)
	3. runaway	runway <i>confusion occurs throughout the test</i>	B4.3. random reconstruction Av.E.: writing proficiency (spelling of basic vocabulary), L1 interference (lexicology)
	4. holding ...	holding short <i>*but [hold short] OK</i>	B4.4. zero reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (lexicology, syntax)
	5. [report] ...	[report] vacated	B4.5. zero reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (syntax)
	6. [runway] vocated / vacated	[runway] vacated <i>spelling insecurity</i>	B4.5. random reconstruction Gen.E.: writing proficiency (spelling insecurity /copied?)
B5	1. approching	approaching	B4.1. logical reconstruction Gen.E.: writing proficiency (slip of the pen?)
	2. [request] ... [runway]	[request] cross [runway]	B5.2. zero reconstruction Av.E.: L1 interference (syntax)
	3.	hold short <i>*but holding short OK</i>	B5.3. zero reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (lexicology, syntax)
	4. runaway	runway <i>*confusion occurs throughout the test</i>	B4.3. random reconstruction Av.E.: writing proficiency (spelling of basic vocabulary), L1 interference (lexicology)
	5. holding ...	holding short	B5.3. random+zero reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (lexicology, syntax)
	6. [report] ...	[report] vacated <i>*but runway vacated OK</i>	B5.6. zero reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (syntax)
B6	1. [request crossed [runway]	[request] cross [runway]	B6.1. random reconstruction Gen.E.: listening proficiency (lexicology, grammatical category within the same word family) Av.E.: L1 interference (syntax)
	2. all short	hold short	B6.2. random reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (syntax)
	3. located	vacated <i>*confusion occurs throughout the test</i>	B6.3. random reconstruction Gen.E.: listening proficiency

Std. code	Errors	Answers (based on answer key)	Error Type
B7	1. holding short	hold short	B7.1. random reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (lexicology, syntax)
	2. [report] ...	[report] vacated *but runway vacated OK	B7.2. zero reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (syntax)
B8	X	X	No error.
B9	1. [report] ...	[report] vacated *but runway vacated OK	B9.1. zero reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (syntax)
B10	1. hold shot	hold short *but holding short OK	B10.1. random reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (syntax)
B11	1. [request crossing [runway]	[request] cross [runway]	B11.1. random reconstruction Gen.E.: listening proficiency (lexicology, grammatical category within the same word family) Av.E.: L1 interference (syntax)
	2. I'll sure	hold short	B11.2. random reconstruction Gen.E.: listening proficiency
	3. holding ...	holding short	B11.3. random+zero reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (lexicology, syntax)
	4. [report] ...	[report] vacated *but runway vacated OK	B11.4. zero reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (syntax)

Based on the table above, the general student proficiency is rather satisfying, with a metric average of erroneous answers per student of about 2.5 (about 11.4%). 76 incorrect answers were given, out of which 48 by groups A and B considered together, while the rest of 28 belong to group C.

In groups AB, the number of errors is almost equally distributed between General English and Aviation English (40 versus 36 in total). Thus, the total error percentage does not surpass a mathematical mean of 12.5% per cadet. Of course, what is obvious without even counting is the dominance of certain insufficiencies: plain English listening proficiency should have been expected to rank highest in a listening test, with a contribution of 34 errors to the total number of General English errors, while in Aviation English, 30 cases are due to L1 interference, mostly in syntax (27) and lexicology (15). Comparatively, L1 interference with plain English counts 5 suspected/potential occurrences in total.

As far as reconstruction types are concerned, zero reconstruction characterizes 21 wrong answers, random reconstruction – 22, and logical attempts at reconstruction – only 5. In other words, among the 20 cadets having provided incorrect answers, only 5 seem to use their logic in what concerns the construction of meaning, indicating a possibility of functional illiteracy in 15 of the learners having committed errors (about 3 quarters or 75%).

3.2 Typical errors in understanding route clearances (group C).

Student answers turned out as described in Table 2, where each cadet was assigned a group designator (C) and a number (1, 2, 3...).

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Table 2. Group C – Route clearances.

Std. code	Errors	Answers (based on answer key)	Error Type
C1	1. clear to	cleared to	C1.1. random reconstruction Gen.E.: listening proficiency (lexicology, grammatical category within the same word family) Av.E.: L1 interference (syntax)
	2. 59 group	flight planned route	C1.2. random reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (syntax, lexicology)
	3. another two [departure]	N[ovember] 2 [departure]	C1.3. random reconstruction Gen.E.: listening proficiency
	4.	that is correct	C1.4. zero reconstruction Gen.E.: listening proficiency
C2	1. clear to	cleared to	C2.1. random reconstruction Gen.E.: listening proficiency (lexicology, grammatical category within the same word family) Av.E.: L1 interference (syntax)
	2. 59 group	flight planned route	C2.2. random reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (syntax, lexicology)
	3. another two [departure]	N[ovember] 2 [departure]	C2.3. random reconstruction Gen.E.: listening proficiency
C3	1. clean to	cleared to	C3.1. random reconstruction Gen.E.: listening proficiency (lexicology, grammatical category, paronyms) Av.E.: L1 interference (syntax)
	2. turn heading after	turn left after	C3.2. logical reconstruction Gen.E.: listening proficiency
C4	1. clear to	cleared to	C4.1. random reconstruction Gen.E.: listening proficiency (lexicology, grammatical category within the same word family) Av.E.: L1 interference (syntax)
	2. five nine group	flight planned route	C4.2. random reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (syntax, lexicology)
	3. another two [departure]	N[ovember] 2 [departure]	C4.3. random reconstruction Gen.E.: listening proficiency
C5	1. then head out to	turn left after	C5.1. random reconstruction Gen.E.: listening proficiency
C6	1. clear to	cleared to	C6.1. random reconstruction Gen.E.: listening proficiency (lexicology, grammatical category within the same word family) Av.E.: L1 interference (syntax)
	2. ... to [departure]	N[ovember] 2 [departure]	C6.2. zero+random reconstruction Gen.E.: listening proficiency (lexicology, paronyms)
	3. after	turn left after	C6.3. zero+zero+logical reconstruction Gen.E.: listening proficiency
	4. air born	airborne	C6.4. logical reconstruction Gen.E.: writing proficiency - spelling based on <i>paronyms</i> air born <i>versus</i> airborne
C7	1. clear to	cleared to	C7.1. random reconstruction Gen.E.: listening proficiency (lexicology, grammatical category within the same word family) Av.E.: L1 interference (syntax)
	2. 59 group	flight planned route	C7.2. random reconstruction Gen.E.: listening proficiency Av.E.: L1 interference (syntax, lexicology)
	3. ... left after	turn left after	C7.3. zero+logical+logical reconstruction Gen.E.: listening proficiency

Std. code	Errors	Answers (based on answer key)	Error Type
C8	1. clear to	cleared to	C7.1. random reconstruction Gen.E.: listening proficiency (lexicology, grammatical category within the same word family) Av.E.: L1 interference (syntax)
	2. flight down route	flight planned route	C8.2. logical+zero+logical reconstruction Gen.E.: listening proficiency (lexicology, grammatical category within the same word family) Av.E.: L1 interference (syntax, lexicology)
	3. air borne	airborne	C8.3. logical reconstruction Gen.E.: writing proficiency – spelling based on <i>etymology, paronyms</i> air borne (noun + past participle of bear) <i>and the compound</i> airborne (spelling)
C9	1. number 2 [departure]	N[ovember] 2 [departure]	C9.1. logical reconstruction Gen.E.: listening proficiency
	2. 10 left after	turn left after	C9.2. logical reconstruction Gen.E.: listening proficiency
	3. airport	airborne	C9.3. random reconstruction Gen.E.: listening proficiency
C10	1. number 2 for [departure]	N[ovember] 2 [departure]	C10.1. logical reconstruction Gen.E.: listening proficiency
	2. airborn	airborne	C10.2. logical reconstruction Gen.E.: writing proficiency - spelling based on confusion between <i>pseudoword paronym</i> airborn and air born, used in place of airborne

Table 2 does not bring any major turnover in relation to Table 1. With the general number of 2.8 erroneous answers out of 20 per student and a 12.7% total presence of wrong answers (28 in metric value) out of the total of 220 answers given.

An interesting finding is that the number of errors is no longer equally distributed between General English and Aviation English, with the plain variation ranking first at more than double in number of mistakes (28 versus 12 in total, respectively). Thus, the total error percentage does not surpass a mathematical mean of 10% of all possible errors per cadet (i.e., 40).

Again, it is visible that plain English listening proficiency contributes to almost all errors, while in Aviation English, 12 mistakes are due to L1 interference, with syntax (12) and lexicology (5) topping the chart.

As far as reconstruction types are concerned (counting combinations as well), zero reconstruction defines 6 wrong answers, random reconstruction – 17, and logical attempts at reconstruction counts higher than with AB groups, at a metric value of 12. In other words, among the 35 reconstructions, 12 are based on logic in what concerns the construction of meaning, indicating a possibility of functional illiteracy being at the root of more than 34%, but still at about half the percentage in potential functional illiteracy obtained by groups AB.

3. CONCLUSIONS: SYNTHESIS AND FURTHER LINES OF INQUIRY

With the idea that the number of wrong answers and the count of errors are not identical (on the contrary: errors are at an approximate double by comparison), let us consider the quantitative sum-up under table 3.

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Table 3. Quantitative sum-up (general values)

General information	Values
total no of answers	660
total no of wrong answers	76
proportional value wrong answers	11.4%
total no of errors in Gen.E.	40AB+28C=68
total no of errors in Av.E.	36AB+12C=48
zero reconstruction cases	21AB+6C=27
random reconstruction cases	22AB+17C=39
logical reconstruction cases	5AB+12C=17

Among the total figures, the only sums that are supposed to become a real concern are the ones indicating the lack of logical reasoning in meaning reconstruction.

However, mention should be made that as shown in sections 3.1 and 3.2., according to topic, the wight of Aviation English syntax and lexicology sizably varies, with about two times more L1 interference in syntax in routine exchanges revolving around taxiing procedures than route clearances, while the vocabulary of Aviation English and plain English is more affected by the said phenomenon as far as route clearance routines are concerned.

Of course, the present quantitative approach would benefit greatly from an in-depth qualitative complementary discussion, to account for the typical errors based on further linguistic, semantic and cultural criteria, to demonstrate which intellectual mechanisms are prone to L1 interference with predilection and for what reasons.

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