

**Numbers are *Easy* – Numbers are *Hard***  
*Números são fáceis – numerosos são difíceis*

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**ABSTRACT:** *In teaching oral English (with an inclination towards professional English) to aspiring pilots and air traffic controllers, one of the most difficult things to do is teach proficiency with numbers. In aviation, as may be with other career fields, the oral use of numbers is critical. The overview explores the problem with numbers. Following the overview are 3 different activities that can be presented successively to help solve the problem.*

**KEYWORDS:** *Aviation English; oral English; professional English.*

**RESUMO:** *No ensino de Inglês oral (com uma inclinação para Inglês profissionais) para pilotos aspirantes e controladores de tráfego aéreo, uma das coisas mais difíceis de fazer é ensinar a proficiência com números. Na aviação, como pode acontecer com outras profissões, o uso oral de números é fundamental. Nesta atividade, inicialmente exploramos o problema com os números. Após a visão geral mostramos três diferentes atividades que podem ser apresentadas, sucessivamente, para ajudar a resolver o problema.*

**PALAVRAS-CHAVE:** *Inglês para aviação; inglês oral; inglês profissional.*

### **1 Overview - What Is The Problem With Numbers?**

You can believe me!  
Numbers in another language are both the easiest thing to learn and at the same time the hardest thing to learn.

How can that be so?

When you were little, one of the first things you learned in your native language was using numbers. Before you could even talk, strangers would lean over smiling and ask, “How old are you?” Your proud parents at first would answer for you, but then later they taught you to hold up 2 fingers. When offering you something to eat, they would ask,



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“How many do you want?” You counted with fingers to answer. You learned numbers so you could get more food.

You learned to count. You learned to do math. You learned everything about numbers in your native language a long time before you studied a second or third language. And in your daily life now, you continue to *use* those numbers every single day. That is *real* practice.

You get *lots* of practice in your own language. You get so much practice that you don’t even have to think about numbers. It’s like riding a bike. You don’t think about it. You just do it.



You are pretty good at numbers, right? In your own language, you’re good. In English, however, you stink. Tell me if I’m wrong.

When you first started learning English in school, things were very likely to be different. You were older. School age children and adults learn differently from babies and toddlers.

Your first English teacher explained the English language number system. She taught you how to count to ten, then one hundred, and then even higher. Maybe the English language method is the same as that in your native language. Maybe not. For example, the Chinese people count the tens, hundreds, thousands, and then something we don’t have in English – the word “*wan*” means ten thousand (there is no equivalent in English). To express one million, the Chinese would say “one hundred-*wan*.” In the English language system, we count tens, hundreds, and thousands. The next step is millions, followed by billions and then trillions, and so on. Different systems to say the same numbers.

Immediately after teaching you *how* to use numbers in the English language way, your teacher probably stopped right there and didn’t bother giving you any additional practice.

Why did she do that?

Because learning the English system on paper is relatively simple. Using the English system is seemingly easy. And every time she tested you on it, you could do it well. You could do it on paper, so why teach more? She moved on to other subjects.

Even though it’s easy to do on paper when you have plenty of time to think and you can *see* the numbers right in front of you, smoothly using those numbers verbally,



without error, and under time constraints is a monumental task. It's probably a task for which you have not practiced.

The same is probably true for other students, unless they have actually lived in an English speaking country and had to deal with money, time, and phone numbers in a variety of situations in which the verbal use of numbers is commonplace and necessary. Those students who have been forced to use English numbers on a daily basis have already practiced out of necessity. They may tend to forget after returning home, but they have practiced plenty while living overseas.

Numbers are easy. Numbers are hard.

## 2 Coping With Real World Numbers

The first time I traveled overseas, I was in the Navy, so we would visit a lot of ports, each port with a different language.

In addition to being a Navy Pilot, one of my jobs was to coordinate port visits for the ship and teach our sailors how to make friends in a foreign country. I had dictionaries, conversation guides, and little pocket translators that made it easy to *speak* with the local citizens. Notice that it was important to speak. You can't make friends without speaking to them.

In each port I would go ashore just to get off the big grey boat for a while. While ashore, I would practice what I preached aboard ship. In every country I visited, I always did my best to speak the language. Most Americans didn't do that back then, but I always felt a bit strange and out of place if I couldn't speak at least some of the local language, so I tried my best.

When you go ashore, you still have to eat. That means eventually you have to pay. A sailor also has to buy souvenirs for the folks back home. When it comes time to pay, we are talking money. It means you are going to hear and speak using numbers in another language.

Here's what really happens, though. I pulled out my handy little phrase book. I looked up the words to say "How much?" and then I got my answer. The answer sounded like gibberish. It was fast. It was unfamiliar. And it may even have been pronounced poorly as well because the shopkeeper might not be so careful about speaking slowly and carefully with me.

It was numbers, but I didn't have the chance to practice them before using them. This



was my first real opportunity to use the language of my local hosts.

Numbers were easy, but numbers were hard.

So I asked again, probably with a dumb look on my face. I got the same answer, only faster and with a note of frustration from the shopkeeper. I tried again. The shopkeeper said it once again slowly, but it still sounded like gibberish to me.

Now I had only two options. The first was to pull out a piece of paper and a pencil and gesture that I would like to see it in writing. Normally, people don't plan that far ahead. I tried the other option that is more likely to be used; I held out a handful of money and let the shopkeeper count it out. I only hoped I hadn't just paid way too much for a bottle of Coke.

You may laugh now, but that's what some people do in every foreign country they visit. I've done it myself a few times. Yes, I felt like an idiot, but I've done it. People *have* to do such odd things just to get by, unless they have practiced numbers.

Numbers are easy. Numbers are hard.

If you actually practice and use numbers before you *must* use them – they become easy. You don't have to feel like an idiot. More importantly, some students who are studying oral English absolutely, positively must be able to use numbers quickly, smoothly, and accurately. Without this skill, they are completely unable to complete their studies or do their job.

My students are like that. It's much more than just feeling like a fool in the marketplace. For my boys, it's their entire future riding on their ability to learn and work in a cockpit where words, letters and numbers are constantly in use verbally.

For my boys, it's much more than a little embarrassment to be avoided. It's their livelihood that is up in the air, so to speak.

### 3 Activities

**3.1 Activity Name:** *Cell Phone Circus*

**Target Audience:** *Oral English Students*

**Teaching Situation:** *Classroom*

**Objectives:** *To reveal the serious nature of the problem with numbers so that the students can see for themselves that their ability in this practical skill is far short of that desired. Secondary objectives include working on pronunciation, fluency and comprehension.*

**Time Sequence:** *Two hours (for approximately 30 to 40 students)*

#### **Planning and Preparation**

For this activity you will need a classroom in which your students can make a lot of noise. You should have either a blackboard or a large whiteboard for keeping score during the game. You will also need enough paper slips (about the size of a business card) suitable for writing down phone numbers, and a large bucket, bowl or hat for collecting the slips in and for picking them out of.

Do *not* explain the reasons for playing the game. Not yet.

Prior to explaining *how* to play the game, hand out the slips of paper and have each student write down a phone number that is sufficiently long for the game. With my students in China, I use cell phone numbers because they are 11 digits long and are usually divided into blocks of 3-4-4 (as in XXX-XXXX-XXXX) which makes it easy to use for the game. Ask the students to write down the numbers using the format you desire.

While the students are writing down the numbers, lay out your score grid on the blackboard similar to the one in Fig-1.

	Group 1	Group 2	Group 3	Group 4
Round 1				
Round 2				
Round 3				
Bonus Round				

Figure 1

Collect the slips with phone numbers in the container you have chosen and mix them up. Divide the class into three or four groups. Then explain the game and the rules.

Their task is to accurately repeat the numbers you read to them without making mistakes in pronunciation, repeating a digit unnecessarily (or stuttering), mumbling, slurring, pausing for too long or hesitating. They must repeat all the digits loudly, clearly, smoothly and accurately – otherwise, no credit.

It helps if there is some reward (or punishment as long as it is lighthearted) to give them incentive to compete.

Any help from their classmates automatically disqualifies the answer and they lose a point. Any noise from the opposing teams is also penalized by taking away a point from them. And any time one of them gets smart and tries to write down the number – no credit for hesitating too long.

### The Game Begins

The students are the contestants. For one group at a time, select a student and pull out one of the number slips. Read the last 4 digits of the number. If they get it right, make a proper game show Dong-Ding-Ding sound and give them a point on the blackboard. If they get it wrong (in any way) make a buzzer sound and announce loudly, “No Credit!”

Repeat this for each student in each group. That’s round one. The score will likely be quite high for each group.



For round 2 give them 6 digits. The resulting scores are somewhat lower. The mistakes are more frequent so the laughter and general rowdiness gets louder.

For round 3 we do 8 digits (which will have a remarkably *low* success rate), and that is to be followed by a bonus round using all 11 digits from a cell phone number. For the final bonus round we only have one student from each group compete in a “sudden death” match. Winner takes all.

Have each group select their very best competitor to represent them. This will drive the point home for them later when they find out that even the very best competitor they have can’t successfully repeat 11 digits (usually). They will finally understand it isn’t so easy.

After they all fail in the final bonus round, then and only then can you finally announce the purpose of playing the game. You can explain to them the reasons *why* numbers are easy – and numbers are hard.

Now you can explain *why* you played the game with them. Explain the problem to them as outlined in the overview. They are ready to listen now.

**3.2 Activity Name:** *License Tag*  
**Target Audience:** *Oral English Students*  
**Teaching Situation:** *Classroom and Curbside*  
**Objectives:** *To teach students how to improve their ability to comprehend and use random combinations of letters and numbers. Secondary objectives include improved pronunciation, fluency and interactions. You may also wish to teach (optionally) the practical use of the ICAO phonetic alphabet.*

**Time Sequence:** *Two hours (any number of students)*

### **Planning and Preparation**

For this activity you will need a classroom large enough to accommodate your students for the first 30 minutes, and a safe roadside sidewalk nearby for the remainder of the time. A period of about 2 hours should suffice. If your students are going to use the ICAO phonetic alphabet professionally, they will each need a copy of the ICAO pronunciation guide (see Table 1 in the Appendix).

You will also need to be prepared in the classroom with about 10 actual examples of license plate numbers from actual vehicles in your local area. A chalkboard is handy, but you can write these license numbers on a piece of paper if no board is available.

### **The Game Begins**

In the classroom, call two students up to the front. Have one student (the ATC Controller) facing the blackboard and the other (the Airplane) facing away. Explain the rules:

- The Controller will read off the license number, then listen for the Airplane to repeat it accurately. If the Airplane gets it right (including good pronunciation and smooth



fluency), the Controller says “Ding-ding-ding-ding” like a bell ringing. If the Airplane gets it wrong for any reason the Controller makes a buzzer sound, then stands waiting silently.

- The Airplane will try to repeat the number. He is not allowed to stutter, mumble, or repeat portions of the license number. He must repeat the number smoothly and accurately. If he makes a mistake and wishes to correct it, he is allowed to say “correction” followed by repeating the entire license number again correctly. If he needs the number repeated by the controller (and he will) he must say “Say again please.” He is also allowed to say “Say again slowly.” Any other response is ignored.
- If the Airplane does not say “Say again” properly, the controller will NOT help by repeating the license number. He will also NOT point out the mistake made by the airplane. His only way to help the Airplane is to wait for “Say again please” and then repeat the ENTIRE license number in the same way he first read it.
- The Airplane may repeat “Say again please” as many times as is necessary in order to get the number right. For the purposes of this exercise, there is no limit.
- When the Airplane finally gets the number right, the Controller reads another one to him.
- After they complete the first number, show the number to the Controller for a short time, but then take it away so that he has to remember and verify the Airplane’s Readback from memory. This is a necessary skill because out on the roadside the vehicles will not stop and wait for the students to get it right. The Controller is also learning to use numbers and letters fluently while the Airplane is practicing.

The first round will take a bit of coaching as they do it the first time. You will probably have to reinforce the rules. With the first two students it will probably take them three or four license numbers to get the procedure right.

Swap the two students and get them to do one or two more license numbers. Then check to make sure the rest of the class understands the procedures and the rules.

When they understand how to practice, take them on a road trip out to the closest roadside with plenty of traffic where the students can safely line up two-by-two. They should be spaced in pairs about a meter or more apart with one student facing the traffic and the other facing away.

Get them started playing License Tag and while they practice, walk up and down the line listening for mistakes in procedures. After about 20 minutes, have them swap positions and continue. Make sure they are following the rules to the letter. This exercise is all about improving their comprehension of numbers, their pronunciation, and their fluency. It does no good if they just get the number right by “cheating” or “helping.” each other. They need to improve their English. They need to force each other to do it the hard way.

Upon completion of this exercise, you should have them repeat this exercise on a daily basis.

- 3.3 Activity Name:** *Readbacks*  
**Target Audience:** *Oral English Students*  
**Teaching Situation:** *Classroom*  
**Objectives:** *Building upon the previous License Tag exercise, this activity goes one step further to get the students to utilize numbers and letters and words in an Aviation English context. The readbacks should use actual aircraft numbers, airport names, runways and taxiways either in the local area or where the students will be training. Though the activity uses standard*

*ICAO phraseology as the medium for practice, the focus of the objectives remains improved pronunciation, structure, vocabulary, fluency, interactions and comprehension (especially comprehension of numbers combined with letters and words).*

**Time Sequence:** Two hours (for approximately 30 to 40 students)

### **Planning and Preparation**

For this activity, each student needs a copy of a Readback sheet. An example is provided in the Appendix. Students will be paired up. I find it best to have them sit in paired columns with an equal number of rows. In order to keep them from pre-planning which Readback to do with each other, I occasionally randomize which column of ATC Controllers is reading to another column of Airplanes.



For the first day, allow both the Controller and the Airplane to use the Readback sheet. On subsequent days, only the Controller is allowed to use the sheet. Airplanes must respond to verbal prompts without benefit of looking at the Readback sheet. Similarly, do not allow the students to write down the details of each “radio call” from the Controller. Granted, in the real world they would be able to do so, but the objective of this activity is to develop their ability recognize and verbally use letters, numbers and words.

### **The Game Begins**

As with the License Tag activity, each student playing the part of the ATC Controller reads an ATC instruction at random to the student playing the part of the Airplane.

The same rules apply. The Readback must be accurate, correct and spoken smoothly and fluently with proper pronunciation. Only the entire Readback is acceptable. Portions of the instruction are not acceptable and no words or numbers may be repeated unnecessarily. If the Airplane wishes to correct his own mistake, he must say “correction” followed by the entire Readback.

It is very important to keep the rest of the class from responding to or repeating the Readback as given. Neither should they offer any help or corrections to the Airplane. Doing so only interferes with the Airplane practicing properly and improving.

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Speaking is a physical activity and like any other physical activity it takes practice to get better at it. By definition, you have to practice out loud for it to be practice. If you do it quietly it’s not practice, it’s a waste of time. *Thinking* about speaking does as much good as memorizing a dance movement. It’s like *thinking* about shooting an arrow or riding a unicycle; you won’t get results thinking about it – you only get results by practicing.

I tell my boys, “You absolutely *must* practice out loud, with somebody, not alone. If you do it alone or silently you are *not* practicing. You are just wasting time trying to make yourself feel better. You get no results.”



The more you practice a word *out loud*, the easier it becomes to *hear* that word. The more you practice saying the numbers, the easier it becomes to hear the numbers and repeat them accurately. There are many creative ways to practice using English numbers, depending on the students and the teaching goals. There's just one thing to remember, though.

Numbers are easy and numbers are hard.

## Appendix

### Readback Sheet

**Table 1 – ICAO Phonetic Alphabet**

November	172RC	Contact	Houston	Center	<b>134.95</b>	
	172WG		San Antonio	Approach	<b>125.1</b>	
	2081J			Departure	<b>125.1</b>	
	23203			Tower	<b>119.8</b>	
	23758			Ground	<b>121.9</b>	
	2426S					
	321WF		Switch To	Unicom on	<b>122.725</b>	
	330JE				<b><u>HONDO</u></b>	<b><u>SAT</u></b>
	4962G	Cleared	To Land	Runway	<b>35R/L</b>	<b>3/21</b>
	5269U	Cleared	For Takeoff	Runway	<b>17R/L</b>	<b>12R/L</b>
	5404V	LINE UP	AND WAIT	Runway	<b>13/31</b>	<b>30R/L</b>
	606TC	Taxi	To	Runway	<b>08/26</b>	
	656MA					
	784GA	Descend and Maintain			<b>5,000</b>	
	810SA	Climb and Maintain			<b>10,000</b>	
	9528W				<b>12,000</b>	
	982BT				<b>15,000</b>	
	987BC				<b>FL180</b>	
	987BT					
	65746	Cleared for the				
2119Q		<b>NDB Runway 35R</b>			Approach	
		<b>RNAV 17L</b>			Approach	
		<b>ILS RWY</b>				
		<b>03</b>			Approach	
		<b>ILS RWY</b>				
		<b>12R</b>			Approach	
		<b>ILS RWY</b>				
		<b>30L</b>			Approach	

<i>CHARACTER</i>	<i>MORSE CODE</i>	<i>TELEPHONY</i>
A	• —	Alfa
B	— •••	Bravo
C	— • — •	Charlie
D	— ••	Delta
E	•	Echo
F	•• — •	Foxtrot
G	— — •	Golf
H	••••	Hotel
I	••	India
J	• — — —	Juliet
K	— • —	Kilo
L	• — ••	Lima
M	— —	Mike
N	— •	November
O	— — —	Oscar
P	• — — •	Papa
Q	— — • —	Quebec
R	• — •	Romeo
S	•••	Sierra
T	—	Tango
U	•• —	Uniform
V	••• —	Victor
W	• — —	Whiskey
X	— •• —	Xray
Y	— • — —	Yankee
Z	— — ••	Zulu
1	• — — — —	One
2	•• — — —	Two
3	••• — —	Three
4	•••• —	Four
5	•••••	Five
6	— ••••	Six
7	— — •••	Seven
8	— — — ••	Eight
9	— — — — •	Nine
0	— — — — —	Zero