ILDE Data Analysis

1° Study requirements

In our study, the following questions were raised:

Could digital technology prove to be beneficial to learners in English, as a foreign language, as well as in the learning process of their native language ? What could be its impact on the four language skills (listening, speaking, reading, writing) ?

We aimed to provide answers based on the ILDE experimentation.

5 countries were involved in this study : Austria, France, Greece, Italy, Sweden.

In order to conduct this study, four groups were formed in each country. Two of them were trained in English with one group using digital technology whereas the other group didn't. The same process was applied to the native language learning groups.

The number of participants we gather data from :

|	Digit English Group	Zero Digit English group	Digit Native Language Group	Zero Digit Native Language Group
Austria	8	8	10	11
France	10	11	10	10
Greece	12	7	20	20
Italy	71	70	73	70
Suède	17	15	0	0

- 333 students passed an entry test
- 137 were assessed 3 times after studying units part of the project's pedagogical material.
- 2 538 data were collected.

2° Data representation

The data collected can be represented in a spider chart which provides an accurate visual of the evolution of the different skills at stake.

Likewise, a linear representation enables to keep up with the outcome skill after skill.

The whole data appedicies can be found at the end of the document.
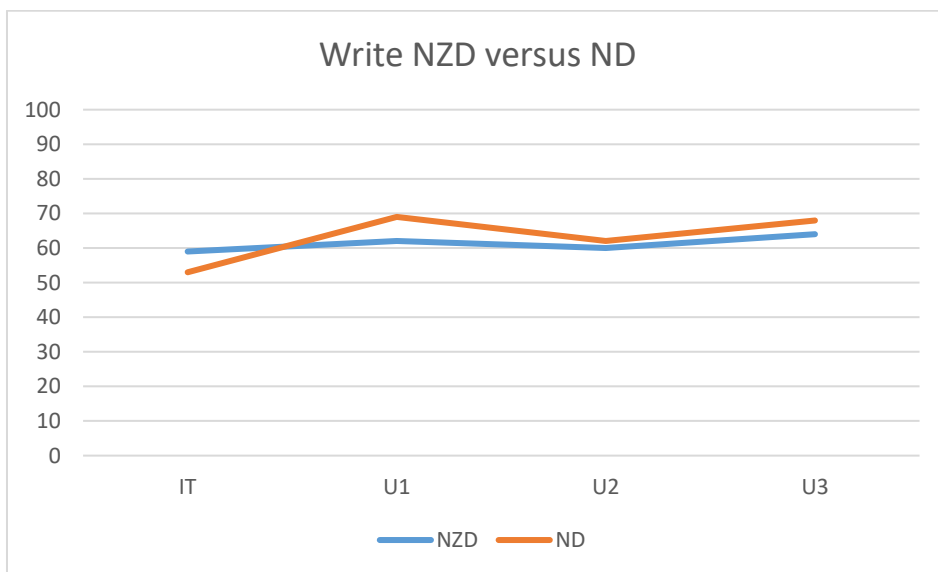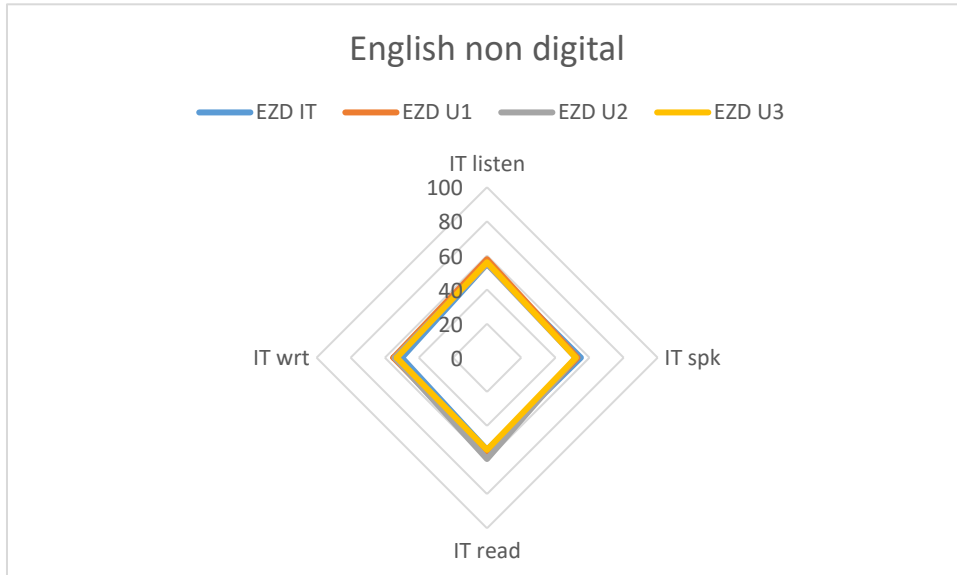
3° The incertainty measurement principle

All measurements always have some incertainty.

We know that the assessment of a student's skill depends on the time he is being assessed, the previous course he attended prior to the assessment, his tiredness, whether he had a good night's sleep or not, and so on…

The data of all the students assessed :

	Students tested	IT listen	IT speak	IT read	It Write
English Digit	88	**49**	52	**53**	52
English zero digit	94	**56**	54	**53**	49
Native language digit	71	66	65	53	53
Native language zero digit	80	64	67	67	59

The initial tests' samples must be homogenous.

For example, as to the reading comprehension skill in English, a score of 53 is reached, while a 7 point difference is noted for the listening comprehension skill.

As to both Native Language groups, the difference ranges from 2 to 14 points

Thus, we can consider that the measurement incertainty is about 10. Besides, a significant improvement must be superior to 10.

4° Data.

4.1. Data collection observation :

- The group « Digital English » has progressed in the 4 skills.
- The « Zero Digit English Group » has not progressed in any skill.
- The «Digit Native Language » has progressed in two skills : reading and writing.
- The «Digit Native Language » has not progressed in the two other skills : speaking and listening.
- The « Zero Digit Native Language » has not progressed in any skill.

    The details are given Annex 1 (spider graphic) and Annex 2, linear graphic

4.2. The samples were divided according to the entry test's different levels of average performance.

Group	Results	Number of students
Level1	0-39	16
Level 2	40 - 59	35
Level 3	60 - 79	53
Level 4	80 - 100	34

- Students of level 1 and 2 have progressed with the use of digit.
- Students of level 3 and 4 have not progressed in any skill.

- ➤ What conclusions can we draw from our study ?
- Students progressed when they used Digit in English.
- Low performing students at the entry test progressed with the use of Digit whereas no improvement can be noticed from the students who achieved good scores at the entry test.

    The details are given Annex 3.

4.3. Analyse by country

Annex4, the samples are too small to allow any conclusion.

5° The study limitations

- The study focused on a sample of 333 students, divided into subgroups of 80 students each. 137 students were assessed at the entry test and then after the 3 units. These samples might not be considered sufficiently relevant.
- We do not know how long - how many hours - each student was being trained with Digit.
- We do not know if the teachers were regular digit users, it is impossible to know whether they were really at ease with the use of Digit.
- We do not know if the students concerned are used to using Digit, and we don't know either if the use of Digit represented a hindrance.
- It is quite impossible to infer valid extensive rules regarding all vocational school students in Europe.

6° Research on digital teaching

A study carried out in 2020 by the French National Education Ministry summarized the data of the research on Digit teaching and the impact on learning, "Tricot, A & Chesné, J.-F. (2020). Numérique et apprentissages scolaires : rapport de synthèse. Paris : Cnesco." https://www.cnesco.fr/wp-content/uploads/2020/10/201015_Cnesco_Numerique_Tricot__Chesne_Rapport_synthese.pdf

One chart displayed in the study shows that the effect of Digit is not the same depending on the skills, ranging from significant to insignificant even weak.

Digital technology can contribute, sometimes indirectly, to school success. For instance, a brand new tool can trigger motivation. Hence, it's the novelty of the tool that creates a benefit, not the tool itself.

Conclusion of the analysis, Annex 5.

Annex 1

Analyse of the data, spider graphic

1° English Digit

	ED	IT listen	IT spk	IT read	IT wrt	Average	
	ED IT	49	52	53	52	52	
	ED U1	61	56	61	54	58	+ 6
	ED U2	67	62	69	59	64	+ 13
	ED U3	66	63	69	63	65	+ 13
Difference U3/IT		+19	+11	+16	+11	+16	
		signifiant	signifiant	signifiant	signifiant	signifiant	

From IT to U3, we can note a significant increase, more than 10 points.

88 students tested IT

42 students tested IT-U1-U2-U3
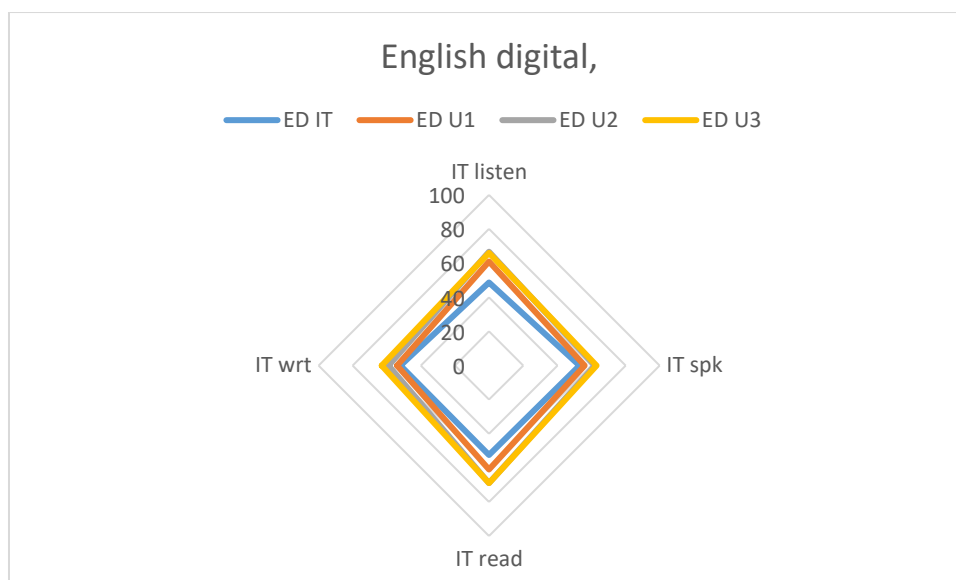
Scale from 0 to 100

If we compare the same 42 students (U3 versus IT)

We have to note :

That the 42 are : 6 Austrian, 10 Greek, 16 Swedish.

2 English zero digit a continuer

	EZD	IT listen	IT spk	IT read	IT wrt	Average
	EZD IT	55	55	54	50	53
	EZD U1	58	53	56	55	55
	EZD U2	55	52	59	54	54
	EZD U3	56	52	54	54	5
Difference U3/IT		+1	-3	+2	+5	+0
		insignifiant	insignifiant	insignifiant	insignifiant	insignifiant

**94 students tested IT**

43 students tested IT-U1-U2-U3
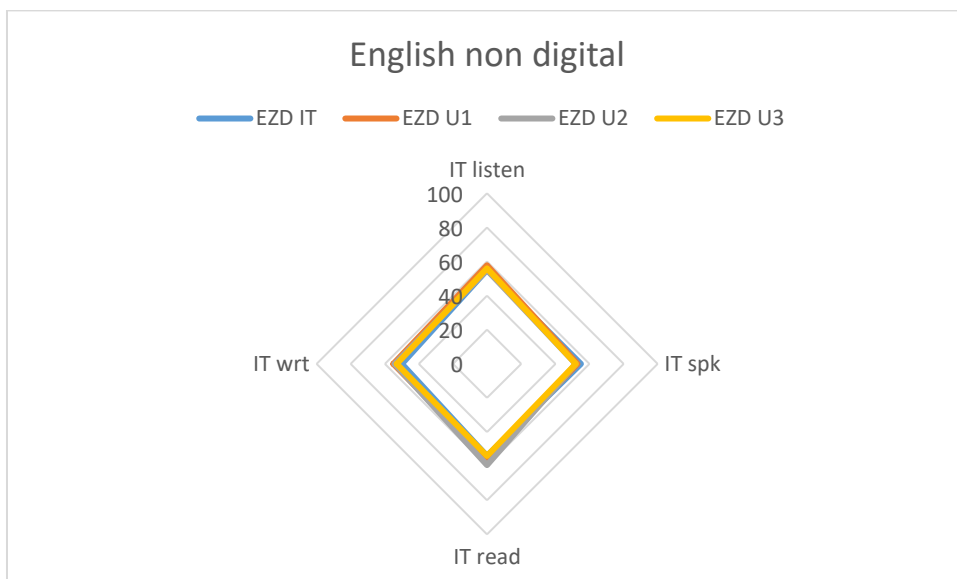
We cannot see any effect on the results from IT to U3 (less than 7 points).

3° Native langue digit

	ND	IT listen	IT spk	IT read	IT wrt	Average
	ND IT	66	65	53	53	53
	ND U1	69	68	73	65	55
	ND U2	80	72	76	58	55
	ND U3	71	76	65	60	55
Difference U3/IT		+5	+11	+12	+7	+2
		insignifiant	insignifiant	insignifiant	insignifiant	insignifiant

72 students tested IT

43 students tested IT-U1-U2-U3
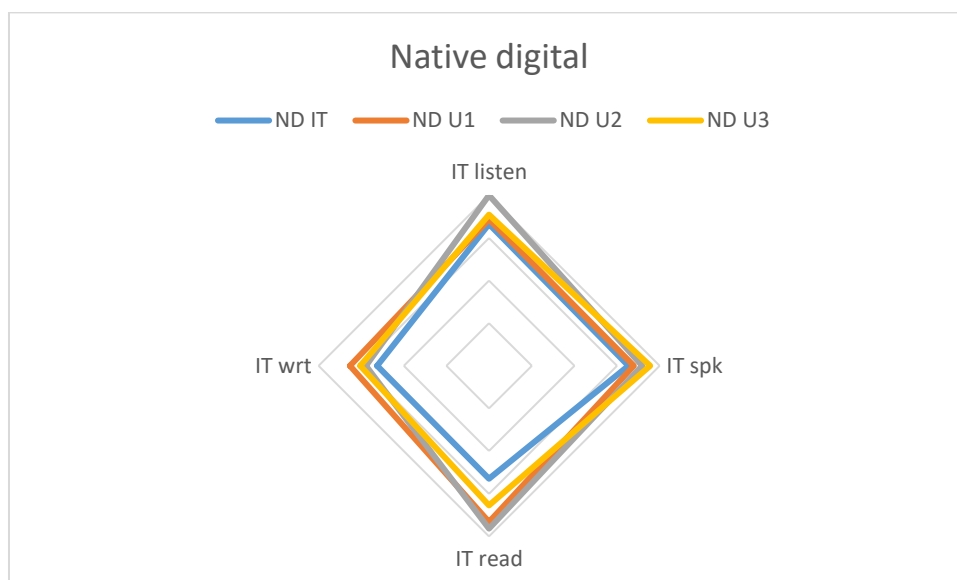
4° Native zero digit

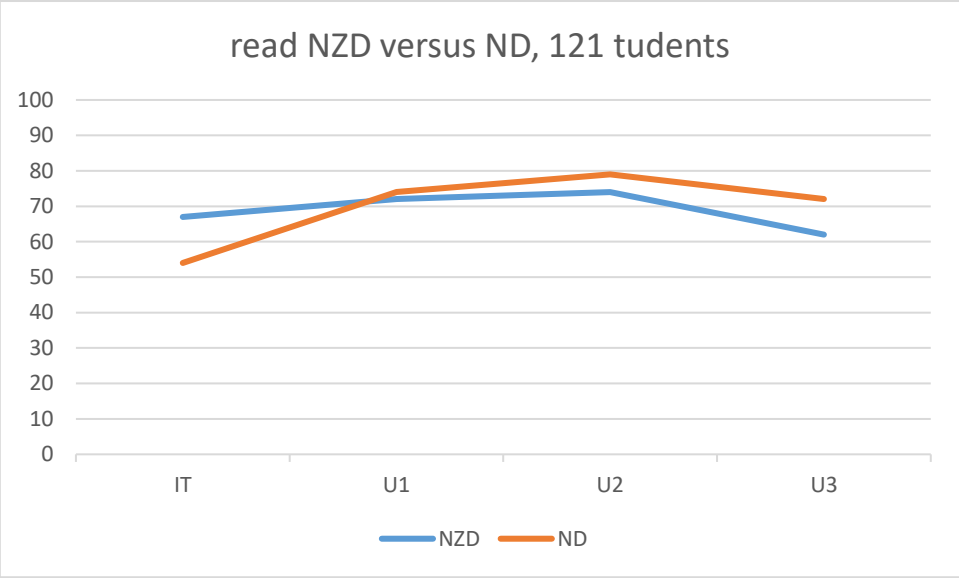|	NZD	IT listen	IT spk	IT read	IT wrt	Average
	NZD IT	64	67	67	59	64
	NZD U1	71	71	75	64	70
	NZD U2	76	69	76	61	71
	NZD U3	68	73	67	65	68
Difference U3/IT		+4	+6	+0	+6	+4
		insignifiant	insignifiant	insignifiant	insignifiant	insignifiant

76 students tested IT

43 students tested IT-U1-U2-U3
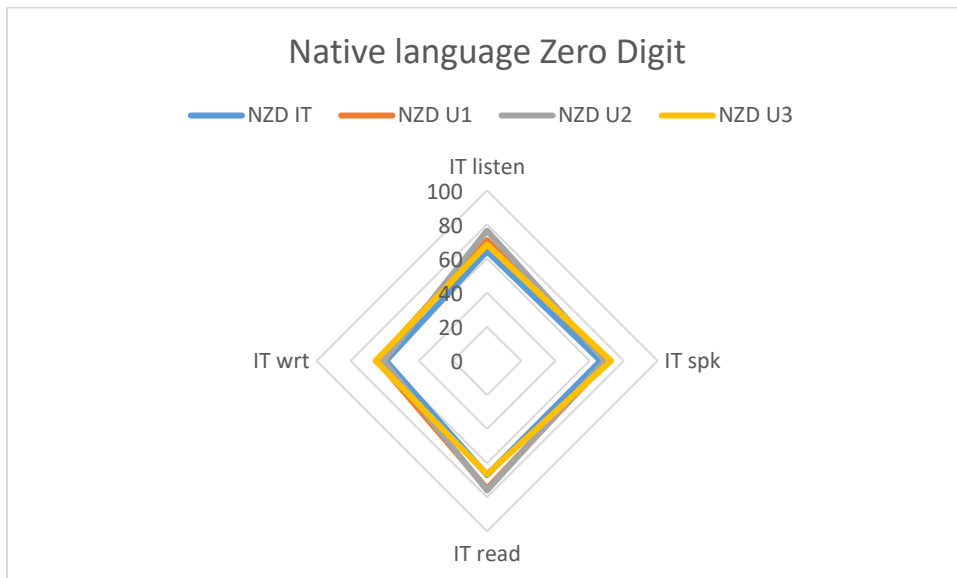
Annex 2

Linear graphic – Analyse of the data

NZD versus ND listen; 129 students

speak NZD versus ND, 131 students

read NZD versus ND, 121 tudents

NZD   ND

Write NZD versus ND, 112 students

NZD   ND
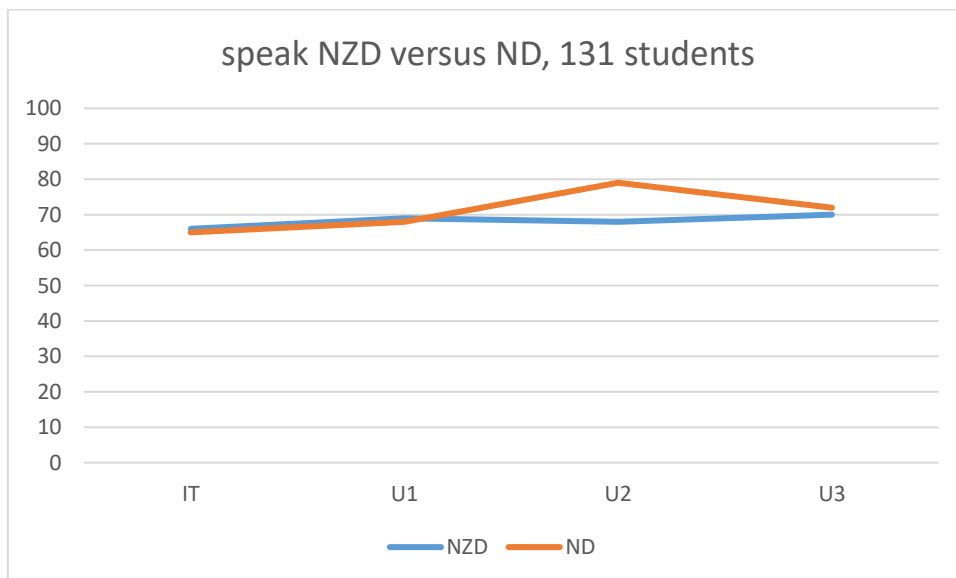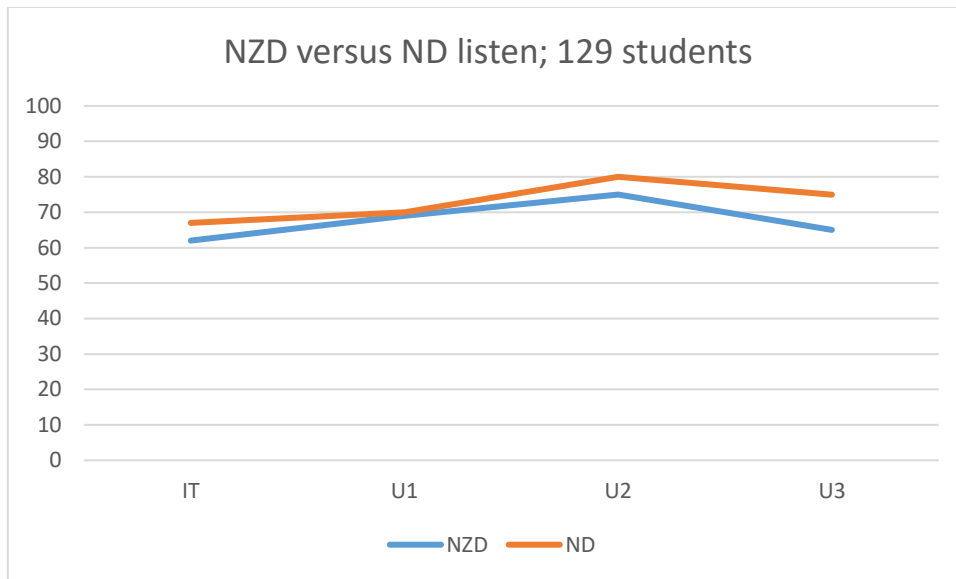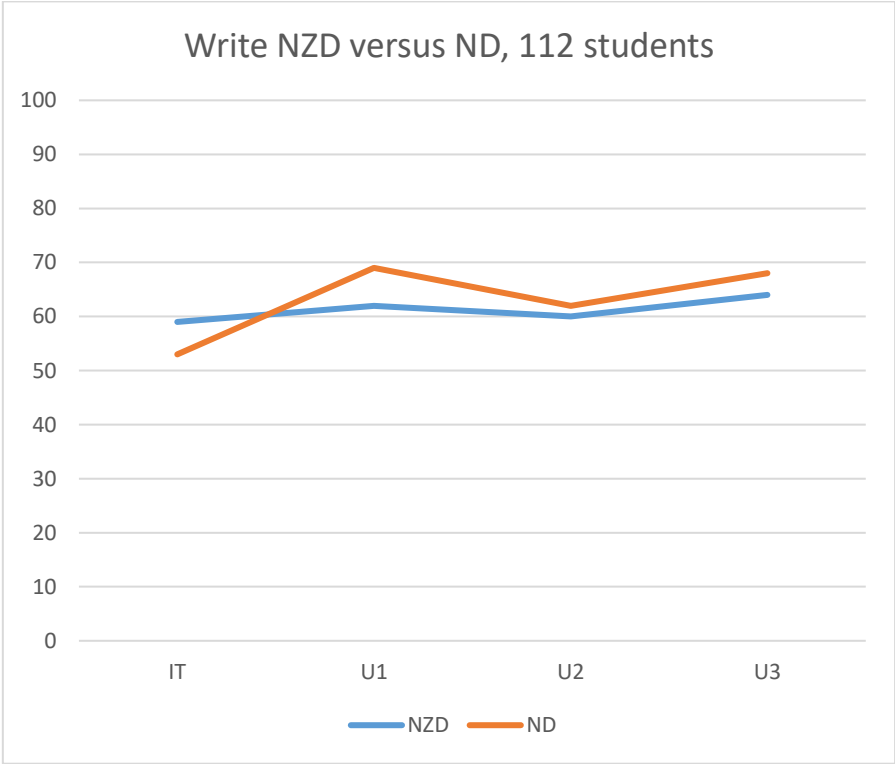
Annex 3

Analyse by initial level (all skills mixed)

Gp 1	IT	U3	16 students
Listen	26	41	signifiant
Spk	25	44	signifiant
read	32	51	signifiant
Wrt	29	54	signifiant

Group 1, IT 25-35

Gp2	IT	U3	35 students
Listen	48	60	signifiant
Spk	48	53	insignifiant
read	56	67	signifiant
Wrt	46	58	signifiant

Group 2 , IT 40-55

GP 3	IT	U3	53 students
Listen	67	68	non signifiant
Spk	69	69	non signifiant
read	69	64	non signifiant
Wrt	62	64	non signifiant

Gp 3, IT 60-75
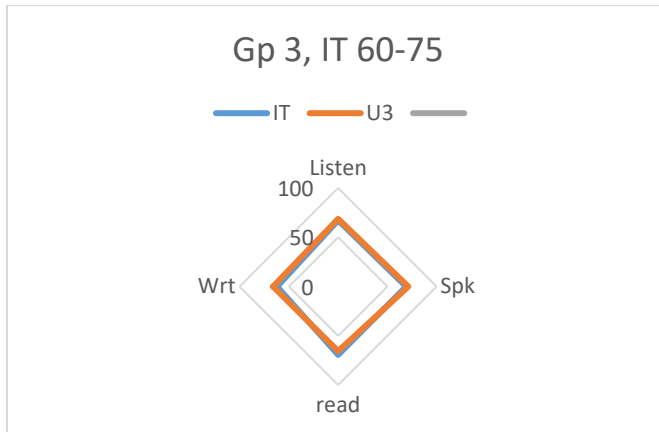
Gp 4	IT	U3	34 students
Listen	86	87	non signifiant
Spk	95	87	non signifiant
read	87	93	non signifiant
Wrt	84	84	non signifiant

Gp 4, IT over 75
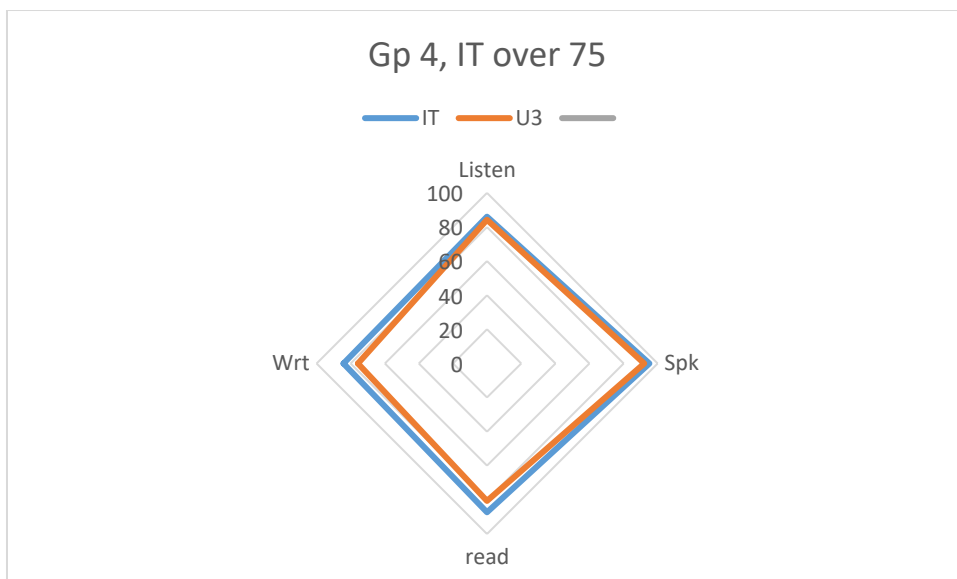
Annex 4

Analyse by country

Austria Digit - 16 students

IT — U3 —

lst

100

50

0

Wrt — Spk

read

Austria zero Digit - 19 students

IT — U3 —

lst

100

50

0

Wrt — Spk

read

France Digit 14 students

IT — U3 —

lst

100

50

0

Wrt — Spk

read

France Zero Digit 12 students

IT — U3 —

lst

100

50

0

Wrt — Spk

read

Greece digit - 30 students

IT — U3 —

lst

100

80

60

40

20

0

Wrt — Spk

read

Greece Zero Digit - 26 students

IT — U3 —

lst

100

80

60

40

20

0

Wrt — Spk

read
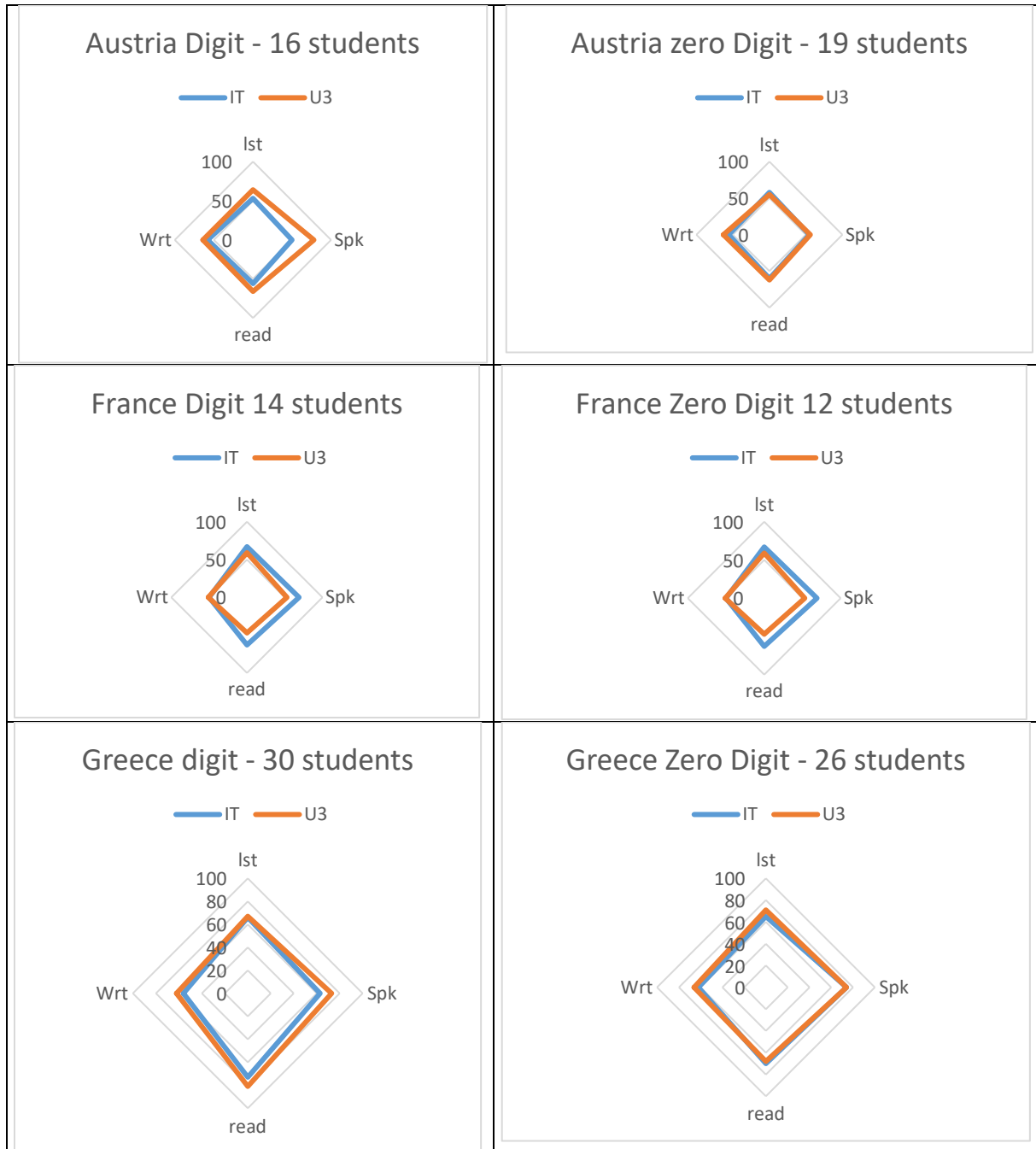
Italy Digit - 3 students

— IT — U3

lst
100
80
60
40
20
0
Wrt
Spk
read
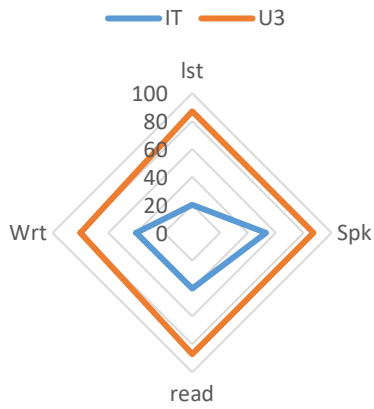
Italy zero digit - 7 students

— IT — U3

lst
100
80
60
40
20
0
Wrt
Spk
read
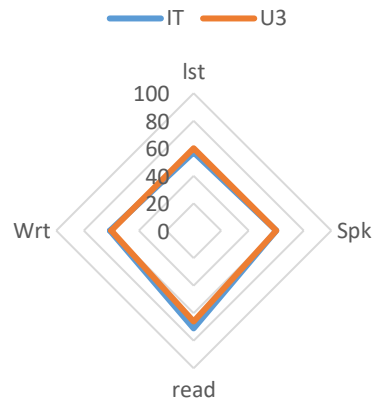
Sweden Digit 16 students

— IT — U3

lst
80
60
40
20
0
Wrt
Spk
read
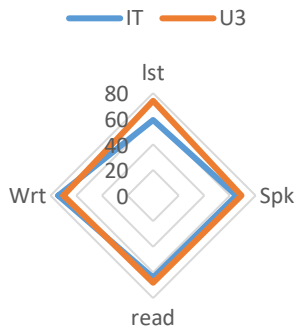
Sweden zero Digit15 students

— IT — U3

lst
75
70
65
60
55
Wrt
Spk
read
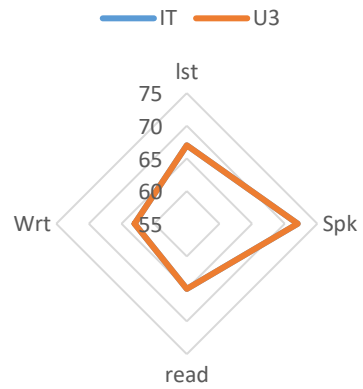
NUMÉRIQUE ET APPRENTISSAGES SCOLAIRES DOSSIER DE SYNTHÈSE

Centre national d'étude des systèmes scolaires

Pedagogical Production Function PPF	Measured effect
• Information researching • Introducing an information • Solving Problems and calculating • Training • Remote Learning • Assessing, self-evaluating , tracking student progress and difficulties • Helping students with special educational needs • Writing a text or a documents alone or together • Experimenting • Learning how to perform a task on a simulator or through virtual reality • Memorizing or learning by heart (vocabulary in a foreign language for instance)	Rather positive measured effect
• Watching a video or an animation • Playing, creating a technical device, a pictural and sound work • Listening to a sound document or listening to an audio text • Watching / reading a multimedia document	Rather limited measured effect
• Programming • Motivating • Developping one's creativity • Bringing out new ideas	No measured effects proven so far
• Reading and understanding a text • Taking notes • Asking questions, asking for some help • Discovering abstract concepts • Cooperating	Rather negative measured effects