

A System for Japanese Listening Training Support with Watching Japanese Anime Scenes

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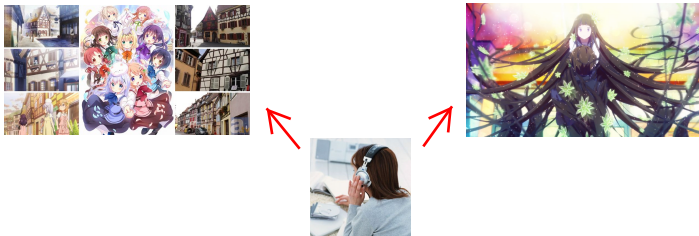
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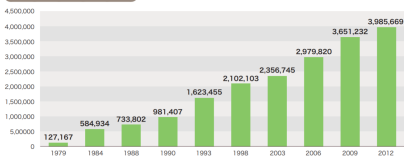
- ▶ Use dialogue scenes in Japanese Animation (Anime) to support Japanese listening skill's training.



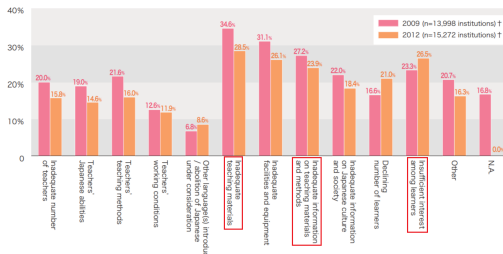
Background

1. Increasing Japanese as Foreign Language(JFL) Learners
2. Problems happened in Japanese Educational Practice
3. Listening is a difficult point for JFL learners
 - ▶ 77.2% students could get a perfect score at Reading
 - ▶ 43.2% at Grammar
 - ▶ Only 29.2% at Listening

Graph 1-1-3 Number of Learners



Graph 1-1-5 Problems and Concerns in Japanese-Language Teaching



Why Anime?

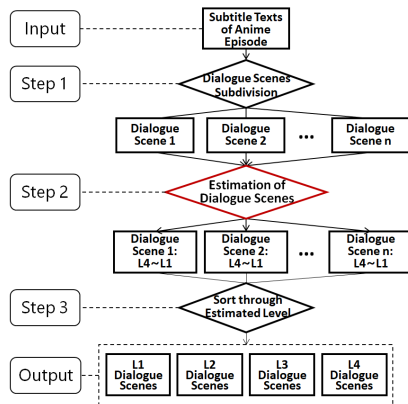
- ▶ Anime is Famous
 - ▶ "manga, anime representing J-Pop ... establish a starting point for interest in and involvement with Japan and the Japanese language" (Japan Foundation, 2012)
- ▶ Potentials of Anime in JFL support from past studies
 - ▶ "As students watch several episodes(of Anime), they naturally get used to hearing the characters' fast Japanese speech" (Fukunaga, 2006)
- ▶ The merits of the Anime itself
 1. Standard pronunciations.
 2. Intuitive motion dialogue scenes.
 3. Interesting scenario to catch attentions.



(a) Fans go to Anime Festival

System Process


- ▶ Input Anime Subtitles
- ▶ Subdivide Dialogue Scenes
- ▶ Estimate Dialogues' Level
- ▶ Classify the Same Level Scenes
- ▶ Provide to JFL learners via Level



(b) System Process

Level of Japanese Learning Degrees

- ▶ 4-Levels in Japanese Language Proficiency Test (JLPT)
- ▶ JLPT is a global universal Japanese language examination
- ▶ JAPAN FOUNDATION(JPF) is the official organization of JLPT
- ▶ Current JLPT owns 5-Levels(N5 N1), but JPF keeps the whole Copyright of the new JLPT, and it has not been well arranged in educational practices.



Level	Criteria
1	The examinee has mastered grammar to a high level, knows around 2,000 <i>kanji</i> and 10,000 words, and has an integrated command of the language sufficient for life in Japanese society. This level is normally reached after studying Japanese for around 900 hours.
2	The examinee has mastered grammar to a relatively high level, knows around 1,000 <i>kanji</i> and 6,000 words, and has the ability to converse, read, and write about matters of a general nature. This level is normally reached after studying Japanese for around 600 hours and after completion of an intermediate course.
3	The examinee has mastered grammar to a limited level, knows around 300 <i>kanji</i> and 1,500 words, has the ability to take part in everyday conversation and to read and write simple sentences. This level is normally reached after studying Japanese for around 300 hours and after completion of an elementary course.
4	The examinee has mastered the basic elements of grammar, knows around 100 <i>kanji</i> and 800 words, has the ability to engage in simple conversation and read and write short, simple sentences. This level is normally reached after studying Japanese for around 150 hours and after completion of the first half of an elementary course.

(c) Japanese Language Level

Input & Subdivide Scene

- ▶ Subtitle files of Anime Episode
- ▶ ASS format as the Standard Subtitle
- ▶ Use Time inf for Subdividing Scenes
- ▶ Dialogue Content for Level Estimation

```

Dialogue: 0:0:09:38.34,0:09:40.34,JP,NTP,0000,0000,0000,普通の学校史ですね
Dialogue: 0:0:09:42.36,0:09:45.43,JP,NTP,0000,0000,0000,これを読むのはかなり大変そうですね
Dialogue: 0:0:09:47.75,0:09:51.23,JP,NTP,0000,0000,0000,これは毎週借りるやつがいても おかしくはないな
Dialogue: 0:0:09:51.34,0:09:54.20,JP,NTP,0000,0000,0000,あんた ここで本借りたことないでしょ
Dialogue: 0:0:09:54.70,0:09:57.85,JP,NTP,0000,0000,0000,うちの図書室の貸出期間は二週間なの
Dialogue: 0:0:09:57.85,0:10:00.51,JP,NTP,0000,0000,0000,だから毎週借りる必要はないのよ
Dialogue: 0:0:10:00.51,0:10:03.90,JP,NTP,0000,0000,0000,なのに この本は毎週返却されるんだってさ
Dialogue: 0:0:10:04.32,0:10:06.44,JP,NTP,0000,0000,0000,誰か借りたかは分かるんですか
Dialogue: 0:0:10:06.50,0:10:12.27,JP,NTP,0000,0000,0000,もちろん 裏に貸出リストがあるから 見てみて
Dialogue: 0:0:10:12.27,0:10:14.55,JP,NTP,0000,0000,0000,あれ 折木さん 毎週違う人が借りてます しかも全員その日のうちに返してます
Dialogue: 0:0:10:15.01,0:10:20.27,JP,NTP,0000,0000,0000,そうなのよ 貸出と返却が同じ日で五周連続
Dialogue: 0:0:10:20.27,0:10:27.75,JP,NTP,0000,0000,0000,時間も分かってて
Dialogue: 0:0:10:28.08,0:10:31.15,JP,NTP,0000,0000,0000,五人とも昼休みに借りて放課後に返してるの
Dialogue: 0:0:10:31.60,0:10:34.17,JP,NTP,0000,0000,0000,どうだい 気になるだろう
Dialogue: 0:0:10:34.77,0:10:38.44,JP,NTP,0000,0000,0000,ええ 私 気になります
Dialogue: 0:0:10:44.22,0:10:46.77,JP,NTP,0000,0000,0000,ちょっと考えてみましょうよ 折木さん

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(d) Input Data

Level Estimation Method

► Analysis include Two aspects

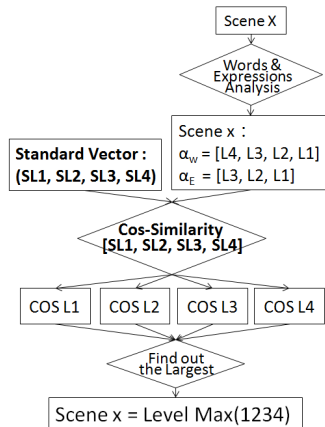
1. Japanese Words
2. Japanese Expressions (Grammars)

► Vectors of Proportions

► $\text{Cos}(SL_W, \alpha_W) * w$
 $+ \text{Cos}(SL_E, \alpha_E) * (1-w)$
 (w: weight coefficient)

Level	Examples of word
L4	青い, 行く, 後ろ, 映画館, 同じ, 学校, 可愛い, 果物
L3	挨拶, 意見, 美しい, 選ぶ, 贈り物, 会場, 季節
L2	愛情, 医師, 失う, 液体, 応用, 片道, 記憶
L1	愛想, 遺跡, 団扇, 英雄, 疎か, 介護, 禁じる

Level	Examples of expression
L3	～く\になる, ～だろう, ～ている
L2	～かようだ, ～恐れがある, ～にしても
L1	～にあって, ～ながらも, ～かたわら



(e) Estimation Method

Standard Comparison

- ▶ Past JLPT Listening Tests
 1. Scripts of past JLPT listening tests
 2. Arranged through Levels
 3. Same analysis & statistics at Words & Expressions
- ▶ Proportions of JLPT tests as Standard Vectors

Level	Total line number of listening tests' script each year				
	2003	2004	2005	2006	2007
L4	244	186	181	180	185
L3	312	288	292	275	286
L2	388	370	380	364	376
L1	404	405	374	424	383

(f) Information of previous JLPT listening tests' script

Listening Level		L4	L3	L2	L1	Not Matched
JLPT4	Words	94.17%	1.41%	0.65%	0.0%	3.75%
	Expressions	--	85.58%	10.93%	3.49%	--
JLPT3	Words	79.55%	12.6%	1.79%	0.15%	5.89%
	Expressions	--	82.78%	12.35%	4.86%	--
JLPT2	Words	66.74%	12.77%	11.56%	0.53%	8.38%
	Expressions	--	77.66%	18.08%	4.26%	--
JLPT1	Words	59.27%	13.64%	15.27%	3.78%	8.01%
	Expressions	--	75.61%	19.25%	5.14%	--

(g) Analysis of Words and Expressions Proportion in JLPT Listening

Output Samples

L4 Output Sample Scene:

Dialogue: 0,0:08:41.11,0:08:41.78,JP,折木さん
 Dialogue: 0,0:08:42.22,0:08:43.64,JP,おー 千反田
 Dialogue: 0,0:08:43.93,0:08:45.47,JP,福部さんを知りませんか
 Dialogue: 0,0:08:46.18,0:08:47.13,JP,来てないのか
 Dialogue: 0,0:08:47.56,0:08:50.01,JP,はい ひょっとして何かあったのかと
 Dialogue: 0,0:08:51.28,0:08:53.27,JP,30分くらい前に会ったが
 Dialogue: 0,0:08:53.49,0:08:55.03,JP,部屋に行くとは言ってたぞ
 Dialogue: 0,0:08:55.90,0:08:58.47,JP,分かりました もう少し待ってみます

L3 Output Sample Scene:

Dialogue: 0,0:11:54.84,0:11:56.06,JP,あの 折木さん
 Dialogue: 0,0:11:56.95,0:11:57.30,JP,うん
 Dialogue: 0,0:11:58.60,0:12:02.06,JP,えっと 気になることがあるんです
 Dialogue: 0,0:12:03.24,0:12:03.41,JP,えっ
 Dialogue: 0,0:12:04.20,0:12:06.09,JP,奉太郎の仕事の範疇だよ
 Dialogue: 0,0:12:07.58,0:12:10.01,JP,あの赤い水着の方 わかりますか
 Dialogue: 0,0:12:11.15,0:12:11.47,JP,うん
 Dialogue: 0,0:00:00.00,0:00:00.00,JP,あの方 私たちがご飯を食べ終わった時は
 Dialogue: 0,0:12:16.33,0:12:18.61,JP,左の耳に白いものをつけてたんです
 Dialogue: 0,0:12:19.41,0:12:22.38,JP,でも 今見たらそれがなくなってるんです
 Dialogue: 0,0:12:23.08,0:12:25.10,JP,よくそんなことに気づいたな
 Dialogue: 0,0:12:25.90,0:12:28.66,JP,いえ 気づいたのは本当にたまたまなんです
 Dialogue: 0,0:12:30.73,0:12:32.76,JP,で それがどうした
 Dialogue: 0,0:12:33.33,0:12:34.50,JP,どうしたじやないでしょ
 Dialogue: 0,0:12:34.88,0:12:37.53,JP,もしそれがアイリングとかカピアスだったらどうするの
 Dialogue: 0,0:12:38.21,0:12:41.62,JP,誰かが踏んだりしたら 最悪怪我しちゃうかもしれないのよ

L2 Output Sample Scene:

Dialogue: 0,0:24:34.11,0:24:35.84,JP,調べてみればいいさ
 Dialogue: 0,0:24:36.23,0:24:39.64,JP,でも 憶えていてはならないって書いてあります
 Dialogue: 0,0:24:40.60,0:24:44.02,JP,もし調べたら 不幸なことになるかもしれません
 Dialogue: 0,0:24:45.22,0:24:49.38,JP,忘れられた方がいい事実というものは存在するでしょ
 Dialogue: 0,0:24:50.18,0:24:52.52,JP,四十五年も前のことでもか？
 Dialogue: 0,0:24:55.55,0:24:56.88,JP,違うんですか
 Dialogue: 0,0:24:57.43,0:24:58.49,JP,違うさ
 Dialogue: 0,0:24:59.49,0:25:01.28,JP,ここに書いてあるじゃないか
 Dialogue: 0,0:25:01.75,0:25:07.31,JP,すべては歴史的遠近法の彼方で古典になっていく
 Dialogue: 0,0:25:09.24,0:25:10.99,JP,時効ってことさ
 Dialogue: 0,0:25:14.76,0:25:15.53,JP,はい
 Dialogue: 0,0:25:16.70,0:25:19.16,JP,それに 調べるって言ったって
 Dialogue: 0,0:25:19.31,0:25:22.28,JP,第二号に去年のことって書いてあるんだから
 Dialogue: 0,0:25:22.44,0:25:24.67,JP,創刊号を見ればいいだけの話だ
 Dialogue: 0,0:25:23.67,0:25:25.20,JP,ちよっと 何よこれ
 Dialogue: 0,0:25:25.83,0:25:27.81,JP,創刊号だけ欠けてるじゃない

L1 Output Sample Scene:

Dialogue: 0,0:15:42.84,0:15:44.60,JP,巡回中の氏子さんですね
 Dialogue: 0,0:15:45.35,0:15:47.77,JP,携帯のストラップみたいなものを抱いました
 Dialogue: 0,0:15:48.45,0:15:49.22,JP,見えるのか！
 Dialogue: 0,0:15:49.53,0:15:51.18,JP,私 夜目が効くんです
 Dialogue: 0,0:15:51.77,0:15:52.80,JP,野生動物か
 Dialogue: 0,0:15:53.55,0:15:54.89,JP,あつ 戻ってきます
 Dialogue: 0,0:15:55.22,0:15:57.09,JP,社務所に届けに行っただけです
 Dialogue: 0,0:15:59.03,0:16:00.04,JP,社務所...
 Dialogue: 0,0:16:02.35,0:16:03.32,JP,なあ 千反田
 Dialogue: 0,0:16:03.80,0:16:06.36,JP,壁 ちよっとくらいなら壊してもいいよな
 Dialogue: 0,0:16:07.87,0:16:10.54,JP,伊原はさっき「金目の物が落ちてると
 Dialogue: 0,0:16:10.71,0:16:13.29,JP,すぐ氏子が届けてくれる」って言ったよな
 Dialogue: 0,0:16:14.06,0:16:16.23,JP,その伊原はバイトで落ち物担当だ
 Dialogue: 0,0:16:18.46,0:16:22.35,JP,ここから俺たちの持ち物だとはっきり分かるようなものを落として
 Dialogue: 0,0:16:22.77,0:16:25.10,JP,氏子に伊原のところで届けてもらうんだ
 Dialogue: 0,0:16:25.80,0:16:28.88,JP,俺たちのピンチが伝われば 助けに来てくれるかもしれない
 Dialogue: 0,0:16:29.81,0:16:30.56,JP,なるほどです
 Dialogue: 0,0:16:31.24,0:16:36.34,JP,納屋の近くで拾ったことにだけだ疑問を持ってくれるかは伊原次第だ
 Dialogue: 0,0:16:37.05,0:16:38.28,JP,ハンカチはどうでしょう
 Dialogue: 0,0:16:38.89,0:16:41.16,JP,摩耶花さんは何處まで見ていると思います
 Dialogue: 0,0:16:41.86,0:16:43.34,JP,よし それにするか
 Dialogue: 0,0:16:49.26,0:16:51.32,JP,千反田 そこからハンカチ落とせ
 Dialogue: 0,0:16:52.09,0:16:52.38,JP,はい

Experiment Setting

1. Five listening questions from JLPT, *Previous Correct Rate*
2. Listening training with Anime dialogue scenes
3. Other five listening questions from JLPT, *After Correct Rate*
 - ▶ Two groups, experiment group & control group
 - ▶ A: Same estimated level with experiment level
 - ▶ B: Every 4 dialogue scenes from L3 to L1

Experiment Level	Group A (Experiment Group)		Group B (Control Group)	
	Participants	Training Scenes	Participants	Training Scenes
Level 3	17	12 Scenes of L3	21	Every 4 Scenes of L3, L2 and L1. Total 12 scenes
Level 2	25	10 Scenes of L2	21	
Level 1	16	10 Scenes of L1	20	

(h) Experiment Setting

Experiment Results

Experimental Group Results

Level (Number of Participants)	Listening Test Status	The Number of correct answers of participants					Aver Correct Rate
		Question 1	Question 2	Question 3	Question 4	Question 5	
L3 (17)	Pre	5	12	8	9	1	41.2%
	After	11	13	11	10	3	56.6%
L2 (25)	Pre	14	10	17	9	5	44%
	After	18	22	19	20	9	70.4%
L1 (16)	Pre	10	9	9	10	7	56.4%
	After	12	11	12	10	9	67.6%

Control Group Results

Level (Number of Participants)	Listening Test Status	The Number of correct answers of participants					Aver Correct Rate
		Question 1	Question 2	Question 3	Question 4	Question 5	
L3 (21)	Pre	8	9	14	10	6	45%
	After	11	10	18	12	3	51.4%
L2 (21)	Pre	9	9	11	12	5	43.8%
	After	16	8	14	14	5	54.4%
L1 (20)	Pre	12	9	10	8	6	45%
	After	11	12	16	8	8	55%

(i) Experiment Results

Conclusion

- ▶ Use Anime Dialogue Scenes to Support Japanese Language Listening Skill
- ▶ Dialogues in Anime Consist of Different Level of Difficulties
- ▶ Estimate the Level of Difficulties for Anime Dialogues
- ▶ Provide the appropriate Dialogue Scenes to JFL learners via Learning Levels