

Child Directed Speech in SpongeBob SquarePants in its Original English Language and in its Persian-Dubbed Version

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Abstract

This study evaluated the extent to which cartoons originally made for Anglo-American children keep the same Child Directed Speech (CDS) characteristics after being dubbed into Persian. The corpus of the present study included 6 episodes of SpongeBob SquarePants which is one of the best-selling American animated television series. The cartoon episodes were transcribed in its original English language and in its Persian-dubbed version. DePaulo and Bonvillian's (1978) categorization of CDS was a fairly consistent and comprehensive description; thus, 5 major CDS features in this categorization were assigned as our coding scheme: (1) short sentence length, (2) phonological simplification, (3) semantic simplification, (4) unique lexicon, and (5) syntactic simplification. Then, the English and Persian scripts of the cartoons were coded in the categories. Number of references and coverage percentage for each category of CDS in the cartoons were calculated based on which we could run one-way chi-square tests for independence and find whether SpongeBob SquarePants dubbed into Persian from English has kept the same CDS features available in the original cartoon. Taken as a whole, the results indicated that after being dubbed into Persian, SpongeBob SquarePants has kept the same CDS features just in terms of syntactic categories, and it is different from its original language in terms of phonological and semantic categories. Thus, it might be concluded that cartoons do not keep all of their CDS features after being dubbed into another language, as a result they might not be as effective as the original ones for child first language learning.

Keywords: Cartoons, Child Directed Speech (CDS), First language, Persian-dubbed Cartoons.

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Introduction

Over the years, a number of claims have been made regarding the nature and influence of the input on language development. Chomsky's (1965) famously argued poverty of the stimulus theory asserts that the input available to young children is impoverished and is lacking in the complexity and richness of structural information necessary for the acquisition of a child's target language. Following Chomsky, it was also argued that, because "irregularities in the child's environment would fail to provide him with enough useful input to foster language development, then the child must possess certain innate language capacities" (DePaulo & Bonvillian, 1978, p. 190). On the contrary, researchers working within usage-based, constructivist frameworks have argued that linguistic input is necessary for language acquisition. Unless children are exposed to language, they will not acquire it. For example, Cameron-Faulkner, Lieven, and Tomasello (2003) suggested that speech directed at children is well suited to the early stages of language development due to the prevalence of item-based frames and pre-fabricated units (e.g. *It's a X; Where's the Y*) found in everyday speech to children. Unlike the argument against input for children, "no child has been observed to speak a human language without having had a communicative partner from whom to learn" (Hoff-Ginsberg & Shatz, 1982, p. 22). Thus, in order to acquire a first language, young children need to be exposed to sources whose language use are more advanced than theirs.

The speech of adults and of older children are potential sources of more advanced language use for children learning a language (DePaulo & Bonvillian, 1978), whereas most children, nowadays, spend more time in front of a TV set than in school or with their parents (Roberts & Christenson, 2001; Van Evra, 2004), and in a typical week, they spend about 19 hours viewing TV (Rideout, Foehr, Roberts, & Brodie, 1999). Television programs are all claimed to be "sources of linguistic data for the child learning to speak" (DePaulo & Bonvillian, 1978, p. 189). Young children can learn about new words while viewing television, and language comprehension can also be facilitated by television because it makes many of the same adjustments that mothers make to adapt language to a child's needs.

Thus, TV programs for children are said to provide children with an enriched input as the speech directed toward them by their parents or older siblings (Van Evra, 2004). This type of linguistic input is called child directed speech (O'Grady, 2005), henceforth referred to as CDS: "a number of modifications into the speech adults address to young children" (DePaulo & Bonvillian, 1978, p. 190). So, TV programs cannot provide children with an enriched input, unless they have all CDS features that are distinguished from adult-to-adult speech. CDS is simplified phonologically characterized by reduplication, lengthened vowels, distinctive consonant-vowel clusters (DePaulo & Bonvillian, 1978), exaggerated intonation and stress, higher pitch and a greater pitch range; slower speech with longer pauses between utterances and after content words (O'Grady, 2005). Regarding syntax, CDS involves more commands, questions, and repetitions; the

utterances tend to be shorter and grammatically simpler than in adult directed speech, and also involves fewer broken sentences (O'Grady, 2005). There are fewer subordinate and coordinate clauses, fewer embeddings and conjoinings, but more content words (DePaulo & Bonvillian, 1978). Features of vocabulary in CDS include a restricted range of vocabulary items, the topics that seem to recur frequently are kin, animals, food, clothing and parts of the body. Moreover, there seems to be three times as much paraphrasing and more reference to the here and now (O'Grady, 2005). CDS also reduces cognitive complexity, too. DePaulo and Bonvillian (1978) presented at least three types of evidence for this conclusion. While speaking to children, (1) adults usually talk about recently completed actions or immediately present objects; (2) they usually ask questions with known answers; (3) and they seem to communicate fewer concepts per unit of time to children than to older children or other adults.

Review of Literature

Most of the previous studies have identified a positive association between exposure to television and language development in children. The more children watched cartoons and children's programs, the sooner they were able to speak their mother language fluently and in a more expressive way (Close, 2004; Naigles & Mayeux, 2001).

A literature review by Naigles and Mayeux (2001) concluded that research has demonstrated that children learn vocabulary and extend understanding of familiar words through educational television such as Sesame Street and Barney and Friends. Another review by Close (2004) of the most robust findings in the literature on the impact of television viewing on child language development has highlighted its positive impact on the children's language development. The findings in Close's review suggest that children can develop comprehension, receptive vocabulary, some expressive language, letter-sound knowledge, and knowledge of narrative and storytelling. Children can also increase their understanding of familiar words from television.

What is there in cartoons which makes them so effective linguistic input for children? Are they meant to contain features existing in the speech directed at children? The response to this question might be implied in the findings of previous studies that cartoons have all CDS features necessary for a child to learn a language. If they did not, children would not attend to them since children avoid complex language that is beyond their comprehension level (Snow, 1986); however, we felt that verification of this issue required a separate study analyzing CDS features of child programs.

Therefore, in the current study, our general purpose was to understand whether cartoons for kids provide children with first language input containing major CDS features. However, we specifically wanted to identify whether cartoons originally made for Anglo-American children keep the same CDS features (See Table 1, DePaulo & Bonvillian,

1978) when dubbed into another language as a first language input for children speaking that language. To the best of our knowledge, nobody has ever done anything the same or related before. Thus, one key research question guided our analyses:

Do cartoons for Anglo-American children in their original English language keep the same CDS features after they are dubbed into Persian?

Methodology

Design

The current study was in fact an analysis of the linguistic content of cartoons as prevalent sources of linguistic input among children to understand whether they keep the key features of CDS after being dubbed into another language. The steps of this linguistic analysis are displayed in Figure 1.

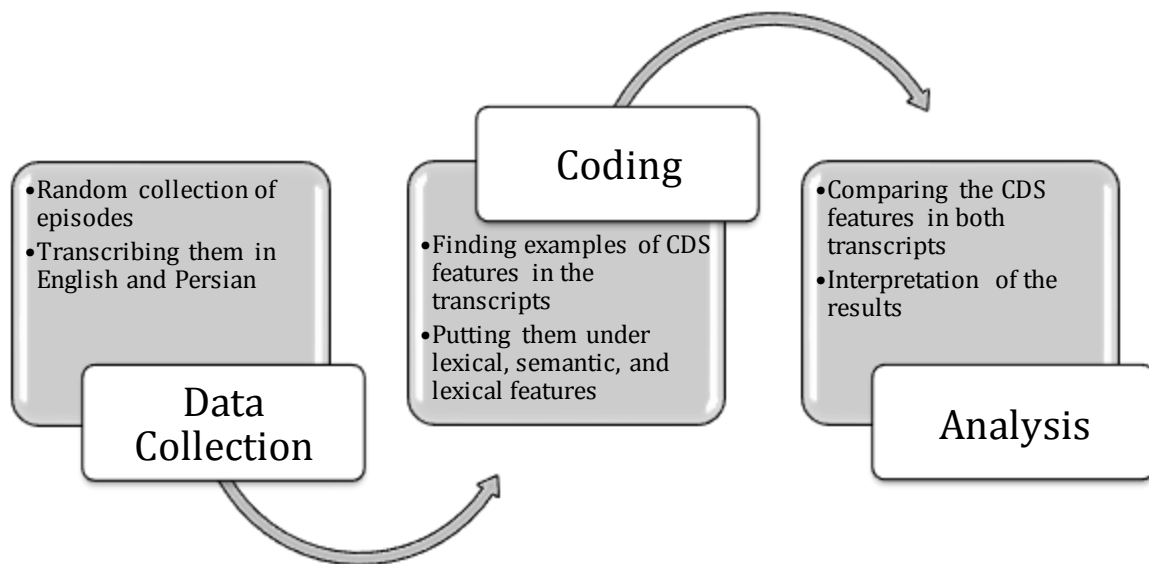


Figure 1.
A Schematic Display of the Design of the Study

The focus of this study was on understanding both the frequency of CDS categories in our corpus and finding explanations for them rather than on simply counting examples of the categories. Therefore, we also needed to do qualitative data analyses in order to answer our questions, since Merriam (2001) explains that qualitative analyses focus on what happens in a given context, how the events take place, and why they occur. So, a quantitative-qualitative content analysis method was decided to be appropriate data analysis method for the purposes of this study.

Cases

The corpus of the present study included 6 episodes of *SpongeBob SquarePants* which is “one of the best-selling American animated television series created by marine biologist and animator Stephen Hillenburg... The series is set in the fictional underwater city of Bikini Bottom, and centers on the adventures and endeavors of *SpongeBob SquarePants*” (http://en.wikipedia.org/wiki/List_of_SpongeBob_SquarePants_episodes). The episodes were selected randomly from seasons 2, 3, 4 (see Appendix 2). In fact, a stratified random sampling method was employed by dividing the cartoon series into seasons or strata, and then selecting 2 episodes randomly from each strata. For the purposes of this case study, this restricted sample may be of great value although not representative of the entire population of favorite cartoons for children.

Procedure

To ascertain the cartoon’s suitability for kids and young children, and to ensure whether it was a favorite to Persian speaking Iranian children, customer reviews in Pooya TV website (<http://pooyatv.ir>), a channel for animations and children programs, were considered, and *SpongeBob SquarePants* appeared appropriate and a favorite of the intended population. It is a five star cartoon (<http://pooyatv.ir>), and more than 17000 viewers have liked it. Here is one of the 3518 comments left by Pantea, a 7-year-old girl, on the cartoon’s page in Pooya TV:

Please, please, please, show us the lovely Bob before the movies, because I love it, my sister loves it, and all the kids on earth love it. If you don’t show it, I’ll tell all the newspapers. Thank you. Bye.

Thus, *SpongeBob SquarePants* was selected for analysis of its CDS features, and we began transcribing the cartoon episodes in its original English language and in its Persian-dubbed version.

After transcribing all the episodes, we needed to find an appropriate scheme for coding and categorizing the data. DePaulo and Bonvillian (1978) converged data from 31 studies

in different languages (American English, Gilyak, Luo and Samoan, Comanche, Black English, Arabic, Marathi, Spanish, Dutch, Hidatsa) to yield a fairly consistent and comprehensive description of adult-to-child speech (See Appendix 1). To some extent, this indicated that the features of adult-to-child speech or CDS are universal among different cultures; although, some researchers contended that CDS features are not universal among the world's cultures since in some cultures adults do not speak to their children at all until they reach a certain age (Snow, 1986). But, there are also some researchers (Bryant & Barrett, 2007; Fernald, 1992) who suggested that CDS features exist universally across all cultures and is a species-specific adaptation. All in all, DePaulo and Bonvillian's (1978) categorization of CDS features was found to be based on some universals of CDS utterances and an appropriate scheme for coding and analysis of CDS data. Thus, 5 major CDS features were assigned as our coding scheme categories: (1) short sentence length, (2) phonological simplification, (3) semantic simplification, (4) unique lexicon, and (5) syntactic simplification. The other categories, clear enunciation, slow rate of speaking, and high pitch, exaggerated intonation, were removed from our analysis since they could not be distinguished in the written transcripts of the cartoons available to the researchers.

The English and Persian scripts of the cartoons were coded in NVivo, a qualitative data analysis computer software package, by two coders in 5 categories consistent with the coding scheme. In fact, within each of the cartoon scripts, given utterances for each category were identified. A reliability test was also conducted on 20% of each of the two coders' data, the second coder blind to the purposes of the study. The combined result of the reliability analysis indicated a high level of agreement and consistency within the coding, and a Cohen's (1988) Kappa of .93 was obtained.

Number of references and coverage percentage for each category of CDS in the cartoons were calculated and based on which one-way chi-square tests for independence were run (with Yates Continuity Correction) and find whether SpongeBob SquarePants dubbed into Persian from English has kept the same CDS features available in the original cartoon. For the probability of Type I error alpha was set at $\alpha < .05$.

Results

Table 1 displays number of references, percentage coverage, and chi square analysis for each CDS category in SpongeBob SquarePants in its original English language and in its Persian-dubbed version.

Table 1.

Descriptive Characteristics of Categories and Subcategories of CDS Features in SpongeBob SquarePants

CDS Characteristic	English		Persian		X^2	df	Sig.
	n	Coverage %	n	Coverage %			
Short sentence length							
Short (less than four words) sentences	811	25.60	870	26.74	2.00	1	.15
Phonological simplification							
Distinctive CVC or CVCV consonant-vowel combinations	2083	15.08	1455	9.24	10.89	1	.000
Semantic simplification							
Sentences with 1 type of semantic relation	382	12.91	530	17.18	23.69	1	.000
Sentences with 2 types of semantic relation	412	21.32	374	20.78	1.74	1	.18
Sentences with 3 types of semantic relation	179	13.51	181	14.39	.003	1	.95
Sentences with 4 types of semantic relation	83	8.31	60	6.72	3.38	1	.06
Sentences with 5 types of semantic relation	39	5.17	37	5.22	.01	1	.90
Sentences with 6 types of semantic relation	14	2.34	9	1.41	.69	1	.40
Unique lexicon							
Terms of endearment and diminutives	23	0.39	32	0.48	1.16	1	.28

Words with concrete referents	571	5.71	700	8.73	12.89	1	.000
Syntactic simplification							
Sentences with 1 subordinate clause	134	13.03	134	14.32	.004	1	.94
Sentences with 2 subordinate clauses	17	2.74	13	2.38	.3	1	.58

Analysis of CDS Categories in the Corpus

Short sentence length. Short sentence length in DePaulo and Bonvillian's (1978) framework (See Appendix 1) for studying CDS was measured through counting the number of sentences with less than four words. An online statistical program (Preacher, 2001) was used for chi-square analysis. A one-way chi-square test for independence (with Yates Continuity Correction) indicated no significant relationship between cartoon language (English/Persian) and sentence length, $X^2(1) = 2.07, p = .15$. To be significant, the p value needs to be .05 or smaller. In this case, the value .15 was larger than the alpha level .05. Moreover, the critical value of X^2 for a study with $\alpha < .05$ and $df = 1$ would be $X^2_{crit} = 3.84$ (Brown, 1988, p. 192), while the observed value 2.07 was less than the critical value. This suggests that the proportion of short sentences in *SpongeBob SquarePants* in its original English language is not significantly different from the proportion of these types of sentences in the Persian-dubbed version.

Phonological simplification. Phonological simplification in DePaulo and Bonvillian's (1978) framework was measured through counting the number of distinctive CVC or CVCV consonant-vowel combinations. A one-way chi-square test for independence (with Yates Continuity Correction) indicated a very significant relationship between cartoon language (English/Persian) and phonological simplification, $X^2(1) = 10.89, p = .000$. In this case, p value.000 was smaller than the alpha value .05, and it suggests that the relationship was significant. Moreover, the observed value 10.89 was far greater than the critical value. This indicates that the proportion of distinctive CVC or CVCV consonant-vowel combinations in *SpongeBob SquarePants* in its original English language is significantly different from that of the cartoon dubbed into Persian. In fact, the cartoon has more simple phonological combinations in its original language than in its dubbed version.

Semantic simplification. Semantic simplification in DePaulo and Bonvillian's (1978) framework was measured through counting the number of different types of semantic relations present in the utterances (Snow, 1974). The common semantic relations are:

a. Agent:	doer, actor
b. Patient:	entity affected by deed of agent or cause
c. Location:	location of deed/event
d. Instrument:	entity employed by an agent in a deed
e. Time:	Time of deed/event
f. Recipient:	receiver of deed of agent
g. Experiencer:	perceiver of a stimulus
h. Stimulus:	entity perceived/experienced by an experiencer
i. Cause:	cause not an agent
j. Goal:	targeted location (Hudson, 2000, p. 276).

One-way chi-square tests for independence (with Yates Continuity Correction) were calculated for sentences with different numbers of semantic relations, but the results only indicated a very significant relationship between cartoon language (English/Persian) and the number of sentences with 1 type of semantic relation, $X^2(6) = 23.69, p = .000$. In this case, the value .000 was smaller than the alpha value .05, so we can conclude that our result was significant. Moreover, the observed value 23.69 was far larger than the critical value. This means that the proportion of sentences with 1 type of semantic relation in *SpongeBob SquarePants* in its original English language is significantly different from the proportion of similar sentences in the cartoon dubbed into Persian. In fact, utterances are semantically simpler in the Persian-dubbed version.

Unique lexicon. Unique lexicon in DePaulo and Bonvillian's (1978) framework was measured through counting the number of terms of endearment/diminutives and words with concrete referents. Parents call their children using terms of endearment such as 'dear', 'darling', 'sweetie', 'sweetheart', 'sweetie-pie', 'sugar', 'baby', 'babe', 'babydoll', or 'cutie'. A diminutive is a formation of a word used to convey a slight degree of the root meaning, smallness of the object or quality named, encapsulation, intimacy, or endearment (Shorter Oxford English Dictionary, 6th edition). For example, Maggie (from Margaret), Sally (from Sarah), or Suzie (from Suzanne), or 'hottie' to denote a sexually appealing (or 'hot') young man or woman. (DePaulo & Bonvillian, 1978, p. 191) Nouns in CDS frequently refer to "concrete objects, events, and persons", and verbs refer to "motion" (DePaulo & Bonvillian, 1978, p. 202).

A one-way chi-square test for independence (with Yates Continuity Correction) indicated no significant relationship between cartoon language (English and Persian) and the use of endearment terms and diminutives, $X^2(1) = 1.16, p = .28$. The p value .28 was larger than the alpha level .05, so we could conclude that the relationship was not significant. Moreover, the observed value 1.16 was smaller than the critical value. But a Chi-square test for independence (with Yates Continuity Correction) indicated a very significant relationship between cartoon language (English and Persian) and the use of concrete words, $X^2(1) = 12.89, p = .000$. The p value .000 was larger than the alpha level .05, so it could be said that the relationship was significant. Moreover, the observed value 12.89 was far greater than the critical value. This means that the proportion of unique lexicon in *SpongeBob SquarePants* in its original English language is significantly different from that of the cartoon dubbed into Persian only in terms of the use of concrete words, i.e., the cartoon has more unique lexicon in its Persian-dubbed version.

Syntactic simplification. Syntactic simplification in DePaulo and Bonvillian's (1978) framework was measured through counting the number of subordinate clauses in a complete grammatical construction (sentence). Richards and Schmidt (2002) defined subordinate clause as "a clause which must be used with another clause to form a complete grammatical construction" (pp. 149-150).

Example: I am going straight home after I've seen the movie.
independent clause subordinate clause

The fewer the number of subordinate clauses in a sentence, the more simple is that sentence syntactically.

One-way chi-square tests for independence (with Yates Continuity Correction) indicated no significant relationship between cartoon language (English and Persian) and syntactic simplification, $X^2(1) = .004, p = .94$ for the number of sentences with 1 subordinate clause and $X^2(1) = .3, p = .58$ for the number of sentences with 2 subordinate clauses. In this case, the values .94 and .58 were less than the alpha value .05, so we could conclude that the relationship was not significant. Moreover, the observed values .004 and .3 were far less than the critical value. This suggests that the proportion of subordinate clauses in sentences in *SpongeBob SquarePants* in its original English language is not significantly different from the proportion of these clauses in sentences in the Persian-dubbed cartoon, i.e., they have the same level of syntactic simplification.

Discussion

DePaulo and Bonvillian's (1978) categorization of child directed speech (CDS) features led us to infer that some of these features might also be available in cartoons as sources of CDS even if after they are dubbed in another language. In fact, the current study specifically aimed at exploring whether cartoons keep the same CDS features after being

dubbed. Thus, the key research question that guided our analyses was whether cartoons for Anglo-American children in their original English language keep the same CDS features after they are dubbed into Persian.

In answer to the research question, the results provided evidence that the number of short sentences and the number of sentences with 1 and 2 subordinate clauses in *SpongeBob SquarePants* in its original English language and its Persian-dubbed version are almost similar. The following example, where the underlined short sentences in the English and Persian transcripts have the same number of words, verifies the claim well:

Squidward: Open 24 hours a day. What a stupid idea! Who wants a Krabby Patty at three in the morning?

Oxtapus: 24 sa?ate baz ast. Ajab fekre ahmaqane?i! Axe ki sa?ate 3 sobh hamberger mixore?

Similarly, here is an example sentence with 2 subordinate clauses both in the English and Persian transcripts:

SpongeBob: I don't think you can be the mom, Patrick, because you never wear a shirt.

Bob Esfangi: Na, man fekr nemikonam to betuni maman beshi chon to hich vaqt pirahan tanet nemikoni.

In fact, after being dubbed into Persian, *SpongeBob SquarePants* has kept the same CDS characteristics just in terms of syntactic features of CDS, but it is different from its original language in terms of phonological and semantic features (see Table 2). Although, *SpongeBob SquarePants* used more simple phonological combinations in its original language, the proportions of semantically simple utterances and unique lexicon were higher in the Persian-dubbed. In the following example, while there are 4 words with CVC or CVCV phonological combination in the English transcript, there is just 1 word with this phonological distribution in the Persian transcript.

Narrator: Ah, The Krusty Krab. Bikini Bottom's premiere daytime eatery. Where it will be closing time right about...

Ravi: Ah, resturane xarchang. Maruftarin qazaxorie ruzane dar Bikini Bottom ke vaqte baste shodanesh hamin ...

In the underlined sentence of the following example, semantic relations, whose number in a sentence determines semantic simplification, in the English and Persian transcripts are equal in number. But, in the whole corpus, their number was higher in the Persian transcript.

Mr. Krabs: MONEY?! You mean, if we stayed open later, you'd give us your money?

Aqaye Xarchang: Pul?! Manzuret ine ke age resturan bishtar baz bashe to be ma pul midi?

In the following example, unique lexicon including terms of endearment, diminutives, and concrete vocabulary are underlined in the sentences from the English and Persian transcripts of the cartoon. More instances of these CDS categories exist in the Persian transcript.

SpongeBob: I see her, Mr. Krabs. A Krabby Patty with cheese. The classic.

Bob Esfanji: Hala didamesh aqaye Xarchang. Ye hamburger ba panir. Sandwiche klasik.

Mr. Krabs: Not the sandwich, boy! The curvy cutie holding the sandwich!

Aqaye Xarchang: Un sandwich na pesar! Un xoshkele gerdi ke dare sandwicho mixore.

Table 2.

*Comparative Coverage of CDS Categories in *SpongeBob SquarePants* in its Original Language and in its Persian-Dubbed Version*

CDS Categories	Comparative Coverage
Short sentence length	English = Persian
Phonological simplification	English > Persian
Semantic simplification	English < Persian
Unique lexicon	English < Persian
Syntactic simplification	English = Persian

The findings of the present study might shed some light on how cartoons might be effectively dubbed for child first language learning. So, while dubbing cartoons into another language, dubbers should ensure that the cartoon has all CDS features existing in original language. Indeed, if one were to make a cartoon for a young child, one would probably try to incorporate those aspects of the CDS style that “appear to encourage the child to be an active and attentive language learner, and that challenge him to deal with utterances that are slightly more complex than his own” (DePaulo & Bonvillian, 1978, p. 208). It is also hoped that information from this study might be useful to cartoon scriptwriters so that they can use appropriate words and structures for children of different ages.

It should be noted that we observed some limitations in this study. The corpus was not representative of the numerous cartoons. Thus, the findings of the current study cannot generalize beyond the case under study.

The analysis of the cartoon scripts in this study suggests that cartoons might not keep their CDS features after being dubbed into another language. While this is a useful finding, this has yet to be tested and is an important avenue for future research. It needs to be examined with a large corpus and with a comprehensive conceptual framework covering all categories of CDS including clear enunciation, slow rate of speaking, high pitch, and exaggerated intonation which were removed from analysis in the current study. This way, it can provide a more accurate assessment of the issue.

Conclusion

Watching dubbed cartoons as linguistic input for children learning their first language has almost been taken for granted. All over the world, parents have found such cartoons appropriate for their children as first language learning input. The current study addressed this issue by specifically aiming at exploring whether cartoons such as *SpongeBob SquarePants* originally made for Anglo-American children and as first language learning linguistic input keep the same CDS characteristics after being dubbed into Persian. Taken as a whole, the results indicated that after being dubbed into Persian, *SpongeBob SquarePants* has kept the same CDS characteristics just in terms of syntactic features of CDS, and it is different from its original language in terms of phonological and semantic features. Thus, it might be concluded that cartoons do not keep all of their CDS features after being dubbed into another language, as a result they are not as effective as the original ones for child first language learning. While dubbing cartoons into another language, we should ensure that the cartoon has kept all CDS features existing in original language.

References

- Brown, J. D. (1988). *Understanding research in second language learning: A teacher's guide to statistics and research design*. Cambridge: Cambridge University Press.
- Bryant, G. A., & Barrett, H. C. (2007). Recognizing Intentions in Infant-Directed Speech: Evidence for Universals. *Psychological Science*, 18(8), 746–751. doi:10.1111/j.1467-9280.2007.01970.x.
- Cameron-Faulkner, T., Lieven, E., & Tomasello, M. (2003). A construction based analysis of child directed speech. *Cognitive Science*, 27, 843–873. doi: 10.1016/j.cogsci.2003.06.001.
- Chomsky, N. (1965). *Aspects of the theory of syntax*. Cambridge, MA: MIT Press.
- Close, R. (2004). Television and language development in the early years: A review of the literature. *National Literacy Trust*. <http://files.eric.ed.gov/fulltext/ED541608.pdf>.

- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates. doi:10.4324/9780203771587.
- DePaulo, B. M., & Bonvillian, J. D. (1978). The effect on language development of the special characteristics of speech addressed to children. *Journal of Psycholinguistic Research*, 7(3), pp.189-211. doi:10.1007/bf01067042.
- Fernald, A. (1992). Human maternal vocalizations to infants as biologically relevant signals. In J. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind: Evolutionary psychology and the generation of culture* (pp. 391–428). Oxford, England: Oxford University Press.
- Hoff-Ginsberg, E., & Shatz, M. (1982). Linguistic input and the child's acquisition of language. *Psychological Bulletin*, 92(1), 3-26. doi: 10.1037/0033-2909.92.1.3.
- Hudson, G. (1999). *Essential introductory linguistics*. Malden, MA: Wiley-Blackwell.
- Merriam, S.B. (2001). *Qualitative research and case study applications in education* (Rev. ed.). San Francisco: Jossey-Bass.
- Naigles, L. R., & Mayeux, L. (2001). Television as incidental language teacher. In D. Singer & J. Singer (Eds.), *Handbook of children and the media* (pp. 135-152). London: Sage Publications.
- O'Grady, W., (2005). *How children learn language*. United Kingdom: Cambridge University Press.
- Preacher, K. J. (2001, April). Calculation for the chi-square test: An interactive calculation tool for chi-square tests of goodness of fit and independence [Computer software]. Available from <http://quantpsy.org>.
- Rice, M. L., Huston, A. C., Truglio, R., & Wright, J. C. (1990). Words from “Sesame Street”: Learning vocabulary while viewing. *Developmental Psychology*, 26(3), 421–428. doi:10.1037/0012-1649.26.3.421
- Richards, J. C, & Schmidt, R. (2002). *Longman dictionary of language teaching and applied linguistics*. (3rd Ed.). Harlow: Pearson Educated Limited.
- Rideout, V J., Foehr, U. G., Roberts, D. F., & Brodie, M. (1999). *Kids & media @ the new millennium*. Menlo Park, CA: The Henry J. Kaiser Family Foundation. Retrieved from <http://www.kff.org/content/1999/1535>.
- Roberts, D. F., & Christenson, P. G. (2001). Popular music in childhood and adolescence. In D. G. Singer & J. L. Singer (Eds.), *Handbook of children and the media* (pp. 395-414). Thousand Oaks, CA: Sage.
- Snow, C. E. (1974). Mothers' speech research: An overview. *Paper presented at the Conference on Language Input and Acquisition, Boston*.
- Snow, C. E. (1986). Conversations with children. In P. Fletcher & M. Garman (Eds.), *Language acquisition* (2nd ed.), (pp. 69-89). Cambridge: Cambridge University Press.
- Van Evra, J. (2004). *Television and child development* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum. doi:10.4324/9781410610447

Appendix 1

Table 1.
Characteristics of Adult-to-Child Speech

Characteristic	Investigator
Short sentence length	Andersen and Johnson; Bates; Berko Gleason; Brown and Bellugi; Drach; Lord; Nelson; Phillips; Sachs et al.; Shatz and Gelman; Snow
More short sentences; fewer long (more than four words) sentences	Shatz and Gelman
Sentence length less variable	Drach
Clear enunciation	Casagrande; Voegelin and Robinett; Weeks
Slow rate of speaking	Drach; Ketkar; Sachs et al.; Voegelin and Robinett; Weeks
Rate of production less variable	Drach
High pitch, exaggerated intonation	Andersen and Johnson; Berko; Gleason; Drach; Kelkar; Phillips; Sachs et al.; Weeks
More varied intonation	Drach; Sachs et al.
Phonological simplification	Casagrande; Ferguson; Weeks
Simplification of consonant clusters	Austerlitz
Simplification of initial sounds of words	Kelkar
Distinctive CVC or CVCV consonant- vowel combinations	Austerlitz; Ferguson
Lengthened vowels	Voegelin and Robinett
Reduplication	Austerlitz; Casagrande; Ferguson; Kelkar
Semantic simplification	Glanzer and Dodd
Fewer types of semantic relations	Snow (1974)
Unique lexicon	Ferguson; Voegelin and Robinett
Terms of endearment, diminutives	Berko Gleason; Ferguson; Kelkar; Weekz
Vocabulary includes more words with concrete referents	Berko Gleason; Phillips; Shatz and Gelman
Vocabulary is less diverse	Andersen and Johnson; Blount; Drach; Phillips
Syntactic simplification	Blount; Sachs et al.

Fewer subordinate clauses	Bates; Drach; Shatz and Gelman; Snow
Fewer compound verbs	Bates; Snow
Shorter mean preverb length	Bates; Snow
Fewer verbs, verb forms, and modifiers; more content words	Phillips
Fewer function words	Andersen and Johnson; Phillips
Fewer coordinate clauses; fewer <i>that</i> - and <i>wh</i> - complementizers	Shatz and Gelman
Fewer transformations	Drach
Fewer embeddings and conjoinings	Pfuderer

Adapted from DePaulo & Bonvillian (1978, p. 193)

Appendix 2

Table 2.

The Episodes of the Case under Study (SpongeBob SquarePants)

Season/Episode #	Title	Original air date
S02E16a	"Graveyard Shift"	September 6, 2002
S02E16b	"Krusty Love"	September 6, 2002
S03E09a	"Krab Borg"	March 29, 2002
S03E09b	"Rock-a-Bye Bivalve"	March 29, 2002
S04E13a	"New Leaf"	September 22, 2006
S04E13b	"Once Bitten"	September 29, 2006