

## A Persian Cued Speech website from the deaf professionals' views

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**Objectives:** Increasingly people are using the internet to find information about medical and educational issues and one of the simplest ways to obtain information is internet. Persian Cued Speech is a very new system to Iranian families with deaf child and the professionals and a few educators have enough knowledge about it, so the purpose of this study was to introduce Persian Cued Speech website to deaf educators and rehabilitation professionals and assess their views about the website and their accessibility to important information through its use.

**Method:** The sample group was randomly selected from deaf educators and rehabilitation professionals working in different educational settings for deaf children in Tehran, our capital. They completed a questionnaire which was adopted from different website assessing questionnaires. Researchers also completed an interview with the sample group.

**Results:** Our findings show that from the deaf educators and rehabilitation professionals point of view, the Persian Cued Speech website was a helpful and informing website. They also wanted more pictures and videos, bigger font sizes and more practical parts. So we decide to change some parts of the website to be more usable for them.

**Conclusion:** Using informational websites can be a very helpful tool in the internet area. Helpful websites are those which are more accessible, readable and appropriately designed and are user-friendly.

**Keywords:** Cued Speech, website, deaf children, professionals.

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### Introduction

The World Wide Web, first used only by researchers, now is used by everyone to deliver time-sensitive information. Many rehabilitation disciplines and many families of disabled people use it to obtain their necessary information regarding a disability. The recent growths in the number of websites, which are specifically designed for parents, suggest that this group is more and more using internet to seek information regarding their children. In fact, Internet does offer an important source of advice and informational support for groups such as new mothers (1). Parents with newly diagnosed deaf children are required to make critical and important decisions about their child's communication system and education at a time when they are emotionally vulnerable (2). The ability to obtain accurate information online so privately, simply and freely

provides opportunity to make good decisions for them. There are few informational resources regarding communication approaches for parents and educators of hearing impaired children. Without enough information, there would be no precise and accurate decision making.

**Cued Speech-** Cued Speech (CS) is a tool to make spoken languages visible. This phonemically based system removes the guesswork from speech reading and makes any spoken language accessible through vision alone. (3).

Literacy is the original and primary goal of CS. It was developed to enable hearing parents to communicate with their deaf children in their native spoken language. The use of this system allows deaf individuals to acquire spoken language in a natural and efficient manner (4).

Families of deaf children have been cueing in the

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United States and many other countries for more than 30 years. CS has been adapted to more than 61 languages and dialects(3). International research demonstrates that deaf children brought up with CS achieve reading scores equivalent to hearing children (5, 6). Consistent exposure to spoken language through cues results in language skills, speech reading ability and literacy levels comparable to those of hearing peers (7). CS is very compatible with the use of hearing and can help to develop auditory awareness, discrimination, and comprehension. The foundation provided by cues integrates well with cochlear implant use too (5). CS is very easy to learn. It takes about 20 hours to learn the basics of CS, after which one should be able to cue any word in his/her language and have an understanding of the theory and uses of CS (3, 6).

Persian Cued Speech (PCS) is a very new approach to Persian speaking pupils. In 2009, it has been developed from the original CS as a doctoral dissertation in Tehran University (8). In spite of its short age of development, many Iranian educators have become interested in its use(9, 10). Having access to exact information about such issues are vitally important because, without it, deaf children are not able to benefit from these approaches and their potentially positive effects on them, simply because their parents and educators do not know it. So an informational PCS website has been developed for care givers and educators of hearing impaired children too, but how effective is it for them, is the current research question.

### Methods

There are some broad headings for quality criteria for health related web sites. As eEurope 2002 argued, this include Transparency and Honesty, Authority, Privacy and data protection, Updating of

information, Accountability, Responsible partnering, Editorial policy, Accessibility, the latter includes attention to guidelines on physical accessibility as well as general fundability, search ability, readability, usability, etc. (11) Reviewing many questionnaires, we developed our own which was adopted from different website assessing questionnaires .To develop our questionnaire we mainly used one of them (12) as our model, which was a reliable Persian questionnaire and very similar in content to the European community and has all those items in it.

Our samples were randomly selected from four groups of educators and rehabilitation professionals working in different educational settings for hearing impaired children, who participated in Cued Speech workshops. The professionals consisted of: Special needs professionals (Spc.), Speech, language pathologists (St.), audiologists (Aud.) and Teachers of deaf children (Edu.) .We asked all of them to complete the questionnaire. Uncompleted questionnaires were put aside. Researchers also completed an interview with the sample group to know their ideas in dept.

### Results

Most of our samples were Speech, language pathologists (St.=36%),then audiologists (Aud. =24%), Teachers of deaf children (Edu.=20%) and Special needs professionals (Spc.=20%).

We used one sample T-test to evaluate each variable with the mean score of the answers to the related questions to determine the expert's view about the Cued Speech website. Our findings showed that they rated the accuracy and truth of contents and website structure as good and the reliability, simplicity, interaction, speed, accessibility and website in comparison with other websites, as excellent. Description of main variables of study is presented in table (1).

**Table 1.** Description of main variables of study

Variables	Items	N (%)				mean	S.D	Range	T	p-value
		never	Low	Mean	high					
<b>Accuracy and truth</b>	6	0	0	17 (68.0%)	8 (32.0%)	12.00	2.08	8-16	.001	.999
<b>Validity</b>	4	0	0	8 (32.0%)	17 (68.0%)	9.08	1.73	5-12	3.12	.005
<b>Easiness of use and user preference</b>	7	0	0	8 (32.0%)	17 (68.0%)	16.04	2.76	8-16	3.69	.001
<b>Content Density</b>	3	0	5 (20.0%)	17 (68.8%)	3 (12.0%)	4.72	1.51	2-8	- 4.22	<.001

Variables	Items	N (%)				mean	S.D	Range	T	p-value
		never	Low	Mean	high					
<b>Interaction</b>	4	0	0	13 (52.0%)	12 (48.0%)	8.84	2.03	5-11	2.06	.050
<b>Speed</b>	2	0	2 (8.0%)	11 (44.0%)	12 (48.0%)	4.48	1.12	2-6	2.13	.043
<b>Subject area</b>	4	0	1 (4.0%)	16 (64.0%)	8 (32.0%)	7.76	2.06	4-12	- .580	.567
<b>Web structure</b>	4	0	1 (4.0%)	12 (48.0%)	12 (48.0%)	8.60	2.08	4-12	1.44	.162
<b>Accessibility</b>	4	0	0	8 (32.0%)	17 (68.0%)	9.40	1.65	7-12	4.22	<.001
<b>Compared with other information sources</b>	2	0	0	2 (8.0%)	23 (92.0%)	5.52	.653	4-6	11.6 3	<.001
<b>Use of comments</b>	2	0	12 (48.0%)	10 (40.0%)	3 (12.0%)	2.80	1.41	1-6	- 4.24	<.001

Accuracy and truth of contents presented in website has been moderate ( $p>0.05$ ) but, other faces of website such as Validity, Easiness of use and user preference, interaction, speed, and Compared with other information sources has been higher then moderate ( $p<0.05$ ). Other faces of website such as

contents Density and Use of comments has been lower than moderate ( $p<0.05$ ). Our first research question was that if familiarity with CS can affect the samples views about the website. Findings are presented in Table (2).

**Table 2.** The relation between familiarity of the sample group with CS and their views

Variable	Familiar with cued speech	N	Mean	Std. Deviation	t	P-value
Accuracy and truth	Yes	11	11.45	1.75	-	.254
	No	14	12.43	2.28	1.170	
Validity	Yes	11	14.82	1.89	-	.047
	No	14	17.00	3.01	2.095	
Easiness of use and user preference	Yes	11	4.64	1.69	-.240	.813
	No	14	4.79	1.42		
Content Density	Yes	11	8.73	2.15	-.241	.812
	No	14	8.93	2.02		
Interaction	Yes	11	4.27	1.10	-.813	.425
	No	14	4.64	1.15		
Speed	Yes	11	7.64	1.96	-.260	.797
	No	14	7.86	2.21		
Subject area	Yes	11	8.18	1.66	-.886	.385
	No	14	8.93	2.37		
Web structure	Yes	11	9.18	1.72	-.575	.571
	No	14	9.57	1.65		
Accessibility	Yes	11	5.36	0.67	-	.298
	No	14	5.64	0.63	1.064	
Compared with other information sources	Yes	11	2.09	1.04	-	.023
	No	14	3.36	1.45	2.441	
Use of comments	Yes	11	8.36	1.63	-	.065
	No	14	9.64	1.65	1.938	

As is seen, Familiarity with Cued Speech do not affect the sample's evaluation regarding accuracy, validity, contents Density, interaction and speed of PCS website ( $p>0.05$ ), but, this factor affect the easiness of use and user preference of PCS website ( $p<0.05$ ). So experts who were not familiar with

Cued Speech have higher score than experts familiar with Cued Speech.

Our second research question was that if the specialty of our samples can affect their views regarding PCS website. Our findings are presented in table (3).

**Table 3.** One way variance ANOVA

Variable	Specialty	N	Mean	Std. Deviation	f	P-value
	Children exceptional expert	5	12.20	1.10	.440	.727
	Children exceptional teacher	5	12.00	2.35		
	Speech therapy	9	12.44	2.46		
	Audiology	6	11.17	2.14	3.45	.035
	Children exceptional expert	5	7.60	1.52		
	Children exceptional teacher	5	9.00	1.58		
	Speech therapy	9	10.22	0.97	.503	.684
	Audiology	6	8.67	2.07		
	Children exceptional expert	5	15.00	2.35		
	Children exceptional teacher	5	15.40	3.36	.955	.432
	Speech therapy	9	16.67	2.92		
	Audiology	6	16.50	2.66		
	Children exceptional expert	5	4.80	2.17	2.25	.112
	Children exceptional teacher	5	4.20	0.84		
	Speech therapy	9	5.33	1.12		
	Audiology	6	4.17	1.83	.316	.814
	Children exceptional expert	5	8.20	2.39		
	Children exceptional teacher	5	7.20	0.45		
	Speech therapy	9	9.56	2.13	.357	.785
	Audiology	6	9.67	1.75		
	Children exceptional expert	5	4.20	1.79		
	Children exceptional teacher	5	4.80	0.84	.352	.788
	Speech therapy	9	4.33	1.12		
	Audiology	6	4.67	0.82		
	Children exceptional expert	5	8.00	1.73	.684	.572
	Children exceptional teacher	5	7.40	0.89		
	Speech therapy	9	8.22	2.54		
	Audiology	6	7.17	2.48	1.97	.149
	Children exceptional expert	5	8.00	2.00		
	Children exceptional teacher	5	8.20	1.10		
	Speech therapy	9	9.11	2.32	.507	.681
	Audiology	6	8.67	2.66		
	Children exceptional expert	5	8.60	2.07		
	Children exceptional teacher	5	9.60	1.14	.352	.788
	Speech therapy	9	9.89	1.69		
	Audiology	6	9.17	1.72		
	Children exceptional expert	5	5.20	0.84	1.97	.149
	Children exceptional teacher	5	5.20	0.84		
	Speech therapy	9	5.89	0.33		
	Audiology	6	5.50	0.55	.507	.681
	Children exceptional expert	5	3.00	1.00		
	Children exceptional teacher	5	2.60	1.14		
	Speech therapy	9	2.44	1.13	.507	.681
	Audiology	6	3.33	2.25		

As it is seen, specialty of participant do not affect their views regarding PCS website ( $p>0.05$ ). This shows the validity of website, too.

### Conclusion

The Internet is a useful educational tool in teaching parents about their child's condition. Parental use of the Internet is already widespread and may need to be specifically addressed during consultation. The best way to ensure that parents have access to quality and accurate information about their child's condition on the www, hence providing support, is to provide it ourselves. The purpose of this study was to examine a Persian Cued Speech (PCS) Website. The findings presented here are not meant to show what is being done exactly regarding other websites, we just reviewed them to get some help to design our website evaluation tool. Our main purpose was to be sure that PCSW is a useful informative website for Persian speaking families of hearing impaired children, their educators and also all the rehabilitation professionals working with them. So using a framework that combined several criteria for evaluating health-information websites, we developed our questionnaire and evaluated PCS website which serves for three distinct audiences (parents, professionals and children) from the specialists' views.

We used 11 criteria to evaluate PCS web site which were :1-Accuracy and truth of contents,2-Validity ,3- Easiness of use and user preference,4-Content density, 5-Interaction,6-Speech,7-Subject area,8-Web structure,9-Accessesibility ,10- Compared with other information sources,11-Use of comments(12).

Accuracy of a website indicates that the references and main information are mentioned with their reference, grammar and spelling are correct and there are some facilities to check the accuracy of the references. By validity we meant that the website information is new and updated and resources are reliable and the author of the website is a valid person. Copyright laws should be taken into account. If there are advertisements, the aim of them is mentioned. The website design and structure should be updated and in this website there are enough information about web designers and the author.

Easiness of use and user preference indicates user friendly access to information and resources, possible simple searching facilities- Simple access to resources - enough information about the searched document, User support information (help- about-contact us) being available in the website There are

relevant but no irrelevant, un appropriate blind links and references and simple interaction and contact with the web designers being possible. Content density means that more information, not pictures and enough information are available in each page and limited uses of advertisements are placed in each page. Interaction is that two way interaction and communication and the answers to any questions are available and the community of users and facilities do fast and there is at least one link for the contact with the main web master.

Speech in website is that the URL comes fast and webmasters change the appearance of the website whenever it's necessary and the links open very fast. Subject area of a website indicates that for example as deaf educators and rehabilitation professionals told us the website content was very complete and comprehensive, the level of website contents that contains previous existing information as well as the new information and the links, are compatible with the web users Also it obtain valid information which can complete users' knowledge about the issues in the website. All the contents are reviewed by professionals and the range of information is mentioned in the website.

Web structure shows that users can search anything they want; there should be a logical, uniform search strategy in the website available for the users. Pictures, animations and different colors are used as user guide to different parts or information of the website. And there are active links between the website pages for themselves. The website accessibility shows that it is searchable with all versions of all search engines, every time the users go to internet, furthermore the contents of website are loadable with pdf , word , HTML ...and All the information is accessible with no charge or a little money . Compared with other information sources criteria indicates that as deaf educators and rehabilitation professionals told us ,the aim of website is to get specific information and serving special population so in comparison with other similar websites, it has an appropriate content, structure, information, cost and accessibility. Use of comments criteria shows that users' comments and suggestions are concerned in website design, the website has common informational resources with other qualified similar website and there are some facilities for the users to communicate with each other via username @ password.

Our findings indicated that the accuracy and truth of contents presented in PCS website was rated as

moderate but, other faces of website such as validity, easiness of use and user preference, interaction, speed, and compared with other information sources has been rated as higher than moderate. Some aspects of website such as content density and use of comments were viewed as lower than moderate. Familiarity with CS do not affect the samples' evaluation regarding accuracy, validity, contents Density, interaction and speed of PCS website, but, affect the easiness of use of comments and use and user preference of website. Experts who were not familiar with CS have higher scores than experts who were familiar with it. The specialty of participant does not affect the evaluation of PCS website, which shows its validity.

Using informational websites can be a very helpful tool in the internet area. The Persian Cued Speech website was a helpful and informing website from the view of our samples, but Some parts of the website changed to be more usable for them for

example: The users told us they wanted more videos, a comparison between the existing methods and more CS training materials and the want us to use more practical pictures and contents and they told the font size should be bigger.

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