

## Evaluation of Web Sites on Sexuality Education for the Adolescents

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### I . Introduction

More adolescents are going online, and allowing the internet to play a growing role as a source of educational information, including sexuality education. Adolescents unable to receive sex education in schools have turned to the internet as their primary source of information about sex and contraception. And, while many schools started to provide programs in health and sexuality education, content is weak and incomplete. For these reasons, adolescents who fail to get information they need from health education courses, or conversations with parents and peers, are accessing the

internet, where they can get expert answers to their questions while maintaining their anonymity(Wilson, 2001). It is true that many adolescents feel uncomfortable discussing sexual issues with their parents or other adults and prefer exploring this issues in private(Smith et al., 2000). Consequently, they may increasingly turn to the internet with questions regarding sexuality.

The result of a 2003 survey indicated that approximately 99.2% of all Korean adolescents aged 13 to 19 were internet users(NIDA, 2003). There is no study for how many of them actually get sexuality information from the Internet. But about two thirds of adolescents Internet users have

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reported experiences of visiting pornographic web sites(NIDA, 2003). From this result, we could make a guess that majority of adolescent internet users might get sexuality information on the Internet.

However, there is a special concern whether sexuality information on the web sites are reliable. Currently, no governing authority act as a gatekeeper of web site publications. This freedom allows that anyone can publish a web site and thereby become an information provider. This aspect can be an advantage and a problem as well. The creators of web pages on sexuality information ranges from health organizations, health professionals and school teachers to health product advertisers. While many professional health personnel and organizations disseminate scientifically reliable information to adolescents through their web sites, many private firms use the web sites as a vehicle to propagate unscientific information.(Kotecki and Siegel, 1999).

As more and more materials becomes available on the web sites, many adolescents are confused by the variety of sites, the quality, and how they should evaluate them. Unfortunately, few studies have systematically reviewed sexuality education information on the internet.

Therefore, the purpose of this study was to assess the quality of the information and

characteristics associated with information packaging, and develop suggestions for how this web site might be improved.

## II. Methods

The web sites were selected for evaluation using the following strategies: We searched web sites on sexuality education for adolescents from September 10 to September 24, 2004 using the search engine Daum, Empal, Naver and Yahoo with the terms *sex education* and *sexuality education*. Inclusion criteria for evaluation were the purpose and the popularity of the sites. The sites should be sex education sites. Sex education sites were defined as sites with a primary purpose of providing sexual health information to adolescents. And we tried to select sites which were frequently visited by internet users. Finally, 50 sites were selected for evaluation (Table 1).

Two kinds of evaluation tool were employed for the analysis. The first evaluation tool which was developed by Kotecki and Chamness(1999) was presented in Table 2. The items in tool were reviewed by expert panel of professionals from discipline of ILS(library and information science), thus ensuring content validity and providing a hierarchical list of criteria for health related web site. The tool provided two separate

Table 1. Selected Web Sites for Evaluation

1	<a href="http://www.9sungae.com">www.9sungae.com</a>	26	<a href="http://aha.ymca.or.kr">http://aha.ymca.or.kr</a>
2	<a href="http://user.chollian.net/~galmeagi/sex-sexed.htm">http://user.chollian.net/~galmeagi/sex-sexed.htm</a>	27	<a href="http://www.my-cgi.dreamwiz.com/family2u">www.my-cgi.dreamwiz.com/family2u</a>
3	<a href="http://www.yline.re.kr">www.yline.re.kr</a>	28	<a href="http://www.ishap.org">www.ishap.org</a>
4	<a href="http://www.youth-n.com">www.youth-n.com</a>	29	<a href="http://www.kyci.or.kr">www.kyci.or.kr</a>
5	<a href="http://www.1366.co.kr">www.1366.co.kr</a>	30	<a href="http://www.abuji.com">www.abuji.com</a>
6	<a href="http://www.cham119.com">www.cham119.com</a>	31	<a href="http://yism37.8m.com/y1.htm">http://yism37.8m.com/y1.htm</a>
7	<a href="http://www.kslove.com">www.kslove.com</a>	32	<a href="http://www.dongacc.com/cooperation/content/sex_education">www.dongacc.com/cooperation/content/sex_education</a>
8	<a href="http://www.edugender.or.kr">www.edugender.or.kr</a>	33	<a href="http://ok1318.pe.kr">http://ok1318.pe.kr</a>
9	<a href="http://www.alssongdalssong.pe.kr">www.alssongdalssong.pe.kr</a>	34	<a href="http://i.kebi.com/~woo1602">http://i.kebi.com/~woo1602</a>
10	<a href="http://www.aidsinfo.or.kr">www.aidsinfo.or.kr</a>	35	<a href="http://home.hanmir.com/~tch009">http://home.hanmir.com/~tch009</a>
11	<a href="http://shelter.ymca.or.kr">http://shelter.ymca.or.kr</a>	36	<a href="http://narara.new21.org">http://narara.new21.org</a>
12	<a href="http://woorisung.com">http://woorisung.com</a>	37	<a href="http://cein.or.kr/~hl4gik">http://cein.or.kr/~hl4gik</a>
13	<a href="http://www.ahsex.org">www.ahsex.org</a>	38	<a href="http://www.sarangnanum.com">www.sarangnanum.com</a>
14	<a href="http://user.chollian.net/~jun5417">http://user.chollian.net/~jun5417</a>	39	<a href="http://user.chollian.net/~blyis">http://user.chollian.net/~blyis</a>
15	<a href="http://www.sun21.org/">www.sun21.org/</a>	40	<a href="http://cpkid.chollian.net/edusex/body.htm">http://cpkid.chollian.net/edusex/body.htm</a>
16	<a href="http://equal.chosun.ac.kr/index.asp">http://equal.chosun.ac.kr/index.asp</a>	41	<a href="http://www.rape119.or.kr">www.rape119.or.kr</a>
17	<a href="http://www.shinbiro.com/~consult/index.html">www.shinbiro.com/~consult/index.html</a>	42	<a href="http://donggu.daejeon.kr/bogunso/b-gilbung-chung8.html">http://donggu.daejeon.kr/bogunso/b-gilbung-chung8.html</a>
18	<a href="http://www.youth.co.kr">www.youth.co.kr</a>	43	<a href="http://www.shes.or.kr">http://www.shes.or.kr</a>
19	<a href="http://www.purelove.or.kr">www.purelove.or.kr</a>	44	<a href="http://www.childpia.pe.kr">www.childpia.pe.kr</a>
20	<a href="http://sedu.uyi.es.kr">http://sedu.uyi.es.kr</a>	45	<a href="http://www.119eve.co.kr">www.119eve.co.kr</a>
21	<a href="http://www.healthguide.kihasa.re.kr">www.healthguide.kihasa.re.kr</a>	46	<a href="http://myhome.naver.com/inlo">http://myhome.naver.com/inlo</a>
22	<a href="http://www.eco-friends.or.kr">www.eco-friends.or.kr</a>	47	<a href="http://www.yoon3399.com">http://www.yoon3399.com</a>
23	<a href="http://www.hli-korea.org">www.hli-korea.org</a>	48	<a href="http://dalara.jinbo.net">http://dalara.jinbo.net</a>
24	<a href="http://my.netian.com/~sajgj">http://my.netian.com/~sajgj</a>	49	<a href="http://www.yangyong-th.ed.kyonggi.kr/html/cyber/gender/index.htm">www.yangyong-th.ed.kyonggi.kr/html/cyber/gender/index.htm</a>
25	<a href="http://www.counsel1318.or.kr">www.counsel1318.or.kr</a>	50	<a href="http://www.soyean.co.kr">www.soyean.co.kr</a>

categories for review: one that concentrates on the quality of information and another that focuses on the design elements of the web site(Kotecki and Chamness, 1999). It had a scoring system that allowed the sites point on yes/no basis on 23 items.

We developed the second tool for the evaluation of covered contents on the basis

of 6 categories of human sexuality established by Sex Information and Education Council of the U.S.(SIECUS). Content points were awarded for human development, relationship, personal skills, sexual behavior, sexual health and society and culture(Table 3).

Table 2. Evaluation Tool for Quality of the Information and Design

criteria	evaluation items
Purpose	1. The purpose of the site is identified.
	2. The information is appropriate for the intended purpose.
	3. The intended audience is specified.
	4. The source funding of the site is identified
Scope	1. Many different aspects of the topics are presented.
	2. Each aspect is presented in depth.
Accuracy	1. The information is consistent with other resources on the topic.
	2. The information presented is properly referenced.
	3. The information is based on scientific data.
Authority	1. The author(s)/organization(s) supplying the information are identified.
	2. The author(s)/organization(s) are recognized in the field.
	3. The credentials of the author(s) are identified.
	4. The author(s) are writing in their discipline.
Currency	1. The information presented is up-to-date.
	2. The information builds on previous knowledge.
Design	1. The information presented in the site is well-organized.
	2. The terminology used is meaningful to the subject area.
	3. The site contains a table of contents or provides an organizational structure to easily access content.
	4. The site contains specific links to data referenced.
	5. The site contains internal search engines.
	6. The site's creation date is clearly displayed.
	7. The date of the last revision is clearly displayed.
	8. The site contains a section the user can ask questions and get answers

Table 3. Evaluation Tool for Contents Covered

categories of contents	evaluation items
Human Development	1. the preciousness of a life
	2. the structure and function of reproductive system
	3. physical and mental changes during sexual development
Relationships	1. expression of friendship and love in an appropriate way
	2. importance of marriage and family
	3. preparation of attitude for establishing a family
Personal Skills	1. talk about sexuality without hesitation
	2. provision an opportunity for solving a sexual problem
	3. suggestions for utilizing available community resources
Sexual Behavior	1. sexual development as a natural process
	2. sexual behavior as a controllable behavior
	3. sexual behavior accompanied by responsibility
Sexual Health	1. dealing with various aspects of sexuality
	2. knowledge for sexual health care
	3. prevention and problem-solving skills for sexual problems(unwanted pregnancy, venereal disease, sexual violence)
Society and Culture	1. positive point of view for sexuality
	2. gender equality
	3. ability to discern deviant sexual behavior and pornography

The association between quality of the web sites on sexuality education and their site characteristics were assessed using ANOVA.

### III. Results

#### 1. Quality of Information on Sexuality Education

Almost two thirds of the sites identified the purpose and source funding of the sites, and the information was appropriate for the intended audience(adolescents). More than 80% of the sites specified their audience as adolescents. In case of scope criteria, 96% of the sites dealt with many different aspects of the sexuality, including sexual behavior, psychological issues, pregnancy and

childbirth, reproductive health etc. Most of the sites provided in-depth information.

Consistent information with other sources on the topic was provided through the most of the web sites(98%). However, more than half of the sites didn't provide references for the presented information. Around 60% of the sites presented the author/organization providing the information and credentials of the authors. But, only 40% of their authors and organizations were reputation in the sexuality education field. In 80% of the sites, the authors were writing in their discipline.

As far as currency concerns, most of the information presented on the webs were renewed and based on existing knowledge on sexuality(Table 4).

Table 4. Quality of the Information on the Selected Web Sites

criteria	evaluation items	n(%)	
		yes	no
Purpose	1. The purpose of the site is identified.	29(58.0)	21(42.0)
	2. The information is appropriate for the intended purpose.	29(58.0)	21(42.0)
	3. The intended audience is specified.	41(82.0)	9(18.0)
	4. The source funding of the site is identified	28(56.0)	22(44.0)
Scope	1. Many different aspects of the topics are presented.	48(96.0)	2( 4.0)
	2. Each aspect is presented in depth.	46(92.0)	4( 8.0)
Accuracy	1. The information is consistent with other resources on the topic.	49(98.0)	1( 2.0)
	2. The information presented is properly referenced.	21(42.0)	29(58.0)
	3. The information is based on scientific data.	34(68.0)	16(32.0)
Authority	1. The author(s)/organization(s) supplying the information are identified.	32(64.0)	18(36.0)
	2. The author(s)/organization(s) are recognized in the field.	20(40.0)	30(60.0)
	3. The credentials of the author(s) are identified.	28(56.0)	22(44.0)
	4. The author(s) are writing in their discipline.	40(80.0)	10(20.0)
Currency	1. The information presented is up-to-date.	42(84.0)	8(16.0)
	2. The information builds on previous knowledge.	47(94.0)	3( 6.0)

## 2. Quality of the Web Sites' Design on Sexuality Education

The design features of the sites were summarized in Table 5. Positive aspects of the sites' design were organization, appropriate utilization of terminology and provision of bulletin board for interactive communication. On the other hand, negative aspects were the lack of internal search engines, and the date of site's creation and the last revision.

In general, score for the scope of the information was the highest and the currency was the second. But, authority of the information had the lowest score(Figure 1).

The 50 sites received scores ranging from 6 to 21. The half of the sites got the scores between 11 and 15points, and another half got between 16 and 20points(Figure 2).

## 3. Evaluation of the Web Sites' Contents on Sexuality Education

Table 6 shows the evaluation results of

the contents covered on the web sites. Responsibility of the sexual behavior was the most frequently mentioned content area on the web sites. The ninety eight percent of the web sites emphasized the responsibility of the sexual behavior. Various aspects of sexuality and positive point of view for sexuality were the second frequently dealt contents on the web sites. Total of 45 sites mentioned these two content areas.

However, only 21 of the 50sites(42%) contained information on the suggestions for utilizing available community resources. Preparation of attitude for establishing a family and gender inequality were the second least referred content areas(64%).

In general, the category of sexual behavior found to be the most frequently mentioned and sexual health was the second. The least mentioned category was personal skills.

The 50 sites received content score ranging from 3 to 15points, with a mean of 11.74(standard deviation=2.81)

Table 5. Quality of the Web Sites' Design on Sexuality Education

	n(%)	
	yes	no
1. The information presented in the site is well-organized.	39(78.0)	11(22.0)
2. The terminology used is meaningful to the subject area.	49(98.0)	1( 2.0)
3. The site contains a table of contents or provides and organizational structure to easily access content.	27(54.0)	23(46.0)
4. The site contains specific links to data referenced.	31(62.0)	19(38.0)
5. The site contains internal search engines.	20(40.0)	30(60.0)
6. The site's creation date is clearly displayed.	20(40.0)	30(60.0)
7. The date of the last revision is clearly displayed.	10(20.0)	40(80.0)
8. The site contains a section the user can ask questions and get answers	46(92.0)	4( 8.0)

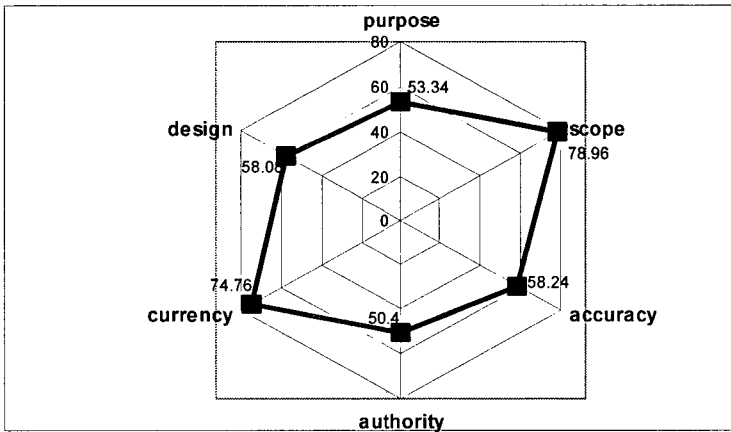
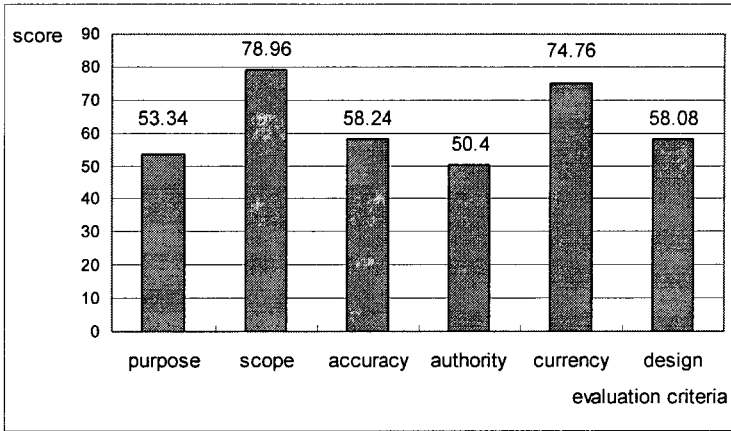


Figure 1. Comparison of Total Scores by 6 Evaluation Criteria

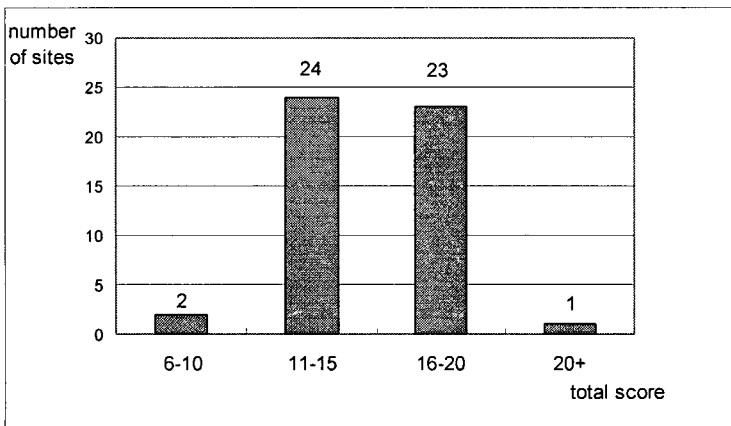


Figure 2. Score Distribution of Quality and Design of Selected Web Sites

Table 6. Mentions of Content Areas by Selected Web Sites

categories of contents	specific educational items	no. of yes(%)	rank	mean±SD
Human Development	1. the preciousness of a human life	39(78.0)	9	2.18±1.10
	2. the structure and function of reproductive system	33(66.0)	15	
	3. physical and mental changes during sexual development	37(74.0)	12	
Relationships	1. expression of friendship and love in an appropriate way	35(70.0)	13	2.12±1.08
	2. importance of marriage and family	39(78.0)	9	
	3. preparation of attitude for establishing a family	32(64.0)	16	
Personal Skills	1. talk about sexuality without hesitation	42(84.0)	7	2.08±0.85
	2. provision an opportunity for solving a sexual problem	41(82.0)	8	
	3. suggestions for utilizing available community resources	21(42.0)	18	
Sexual Behavior	1. sexual development as a natural process	43(86.0)	6	2.72±0.67
	2. sexual behavior as a controllable behavior	44(88.0)	4	
	3. sexual behavior accompanied by responsibility	49(98.0)	1	
Sexual Health	1. dealing with various aspects of sexuality	45(90.0)	2	2.54±0.71
	2. knowledge for sexual health care	38(76.0)	11	
	3. prevention and problem-solving skills for sexual problems (unwanted pregnancy, venereal disease, sexual violence)	44(88.0)	4	
Society and Culture	1. positive point of view for sexuality	45(90.0)	2	2.22±1.02
	2. gender equality	32(64.0)	16	
	3. ability to discern deviant sexual behavior and pornography	34(68.0)	14	

#### 4. Association Between Quality of the Web Sites on Sexuality Education and their Site Characteristics

In order to find out whether there was a significant association between site characteristics and the quality of web sites, selected web sites were categorized into three groups according to the ownership: public organization, private organization and individual. As Table 7 shows, sites owned by private organization had significantly higher accuracy score those owned by public organization ( $P < 0.05$ ). Sites owned by private

organization also showed the significantly higher score on the quality of design than those owned by individuals ( $P < 0.05$ ).

On the other hand, there was no significant association between mentions of the content areas by the web sites and site characteristics (Table 8). Sites owned by public organization showed a tendency to deal with human development more frequently than those owned by private organization and individual, even though the differences in mean score were not significant.



Table 7. Quality of Information and Design of Selected Web Sites as a Function of Site Characteristics

criteria	site characteristics			F	P	Scheffé
	A: public organization	B: private organization	C: individual			
	(n=11)	(n=26)	(n=13)			
	mean±SD	mean±SD	mean±SD			
purpose	2.18±1.17	2.81±1.13	2.31±1.38	1.365	0.265	
scope	1.91±0.30	1.88±0.43	1.85±0.56	0.063	0.939	
accuracy	1.55±0.52	2.31±0.74	2.08±1.04	3.616*	0.035	A<B
authority	2.36±1.21	2.42±1.21	2.38±1.12	0.011	0.989	
currency	1.82±0.41	1.77±0.43	1.77±0.17	0.046	0.955	
design	4.45±1.29	5.31±1.29	4.23±1.69	3.083*	0.045	C<B

\* P&lt;0.05

Table 8. Mentions of Content Areas by Selected Web Sites as a Function of Site Characteristics

categories of contents	site characteristics			F	P
	A: public organization	B: private organization	C: individual		
	(n=11)	(n=26)	(n=13)		
	mean±SD	mean±SD	mean±SD		
human development	2.82±0.41	2.08±1.13	1.85±1.28	2.742	0.075
relationships	2.18±0.75	2.15±1.16	2.00±1.23	0.107	0.899
personal skill	2.00±1.00	2.15±0.83	2.00±0.82	0.196	0.823
sexual behavior	2.91±0.30	2.77±0.51	2.46±1.05	1.500	0.234
sexual health	2.45±0.67	2.58±0.58	2.54±0.97	0.112	0.894
society and culture	2.18±1.08	2.31±0.84	2.08±1.32	0.226	0.798

#### IV. Discussion

In our review of 50 popular web sites providing sexuality education to the adolescents, we found that the quality of this information was relatively not good in purpose, accuracy, authority and design compared to scope and currency. This finding

reinforces concerns raised by other studies which have inadequate quality of health information(including sexuality)on the web(Oh, 2000; Smith et al., 2000; Sohn et al., 2002)

Present study found out that the purpose of the web site was identified in 58% of the selected sites. This result was consistent with

that of research by Kang et al.(2001). In their work, 55% of the sites found to be specified their purpose of the sites. Just as other health education materials, sexuality education web sites can be designed to inform, explain, or persuade. However, it is often difficult to distinguish biased commercial advertisements from unbiased sites created by scientists and health agencies. Therefore, there was a need for educating adolescents to build capability for discern the purpose of the web sites.

Similar to the needs of updating health education materials such as brochures and pamphlets, web information also require updating. We concluded that most of the information presented on the selected web sites was renewed. This result might be possible because web information could be updated less expensively and more simply than traditional print materials. Updating sites and materials is an added and important responsibility when using web as a medium for disseminating sexuality education information(Pealer and Dorman, 1997).

Credentials of the author is an another important component of the web sites' reliability. Credentials of the author should be considered if the author is recognized in the field of sexuality education, if the author qualified to publish a sexuality information web document, if the author list his or her occupation, experience, and education. When

discussing the author, we have to consider if the author is biased or objective. In fact, many web pages are merely disguised advertisements. Therefore, professional health educators or other health professionals embarking on web site construction should clearly list their names, credentials, and affiliations in the header or footer. This effort will help the reader evaluate the purpose and credibility of the web site.

If the organization publishing the web site has a number of sexuality-related information available to users, a researchable index within the web site may be helpful. In our study, only 40% of the sites contained internal search engines. This was the most significant problems of the selected web sites. A searchable index can increase the ease with which a user maneuvers within web site information and will increase user satisfaction. Index issue was also pointed in Kang et al.(2001)' article.

## V. Conclusion

The aim of this study was to assess the quality of the information and characteristics associated with information packaging, and develop suggestions for how this web site might be improved. Major conclusions were as follows. First, the scope and currency of the selected web sites were found to be

appropriate. Second, the authority of the information was found to be the most serious problem of the selected sites. Third, the category of sexual behavior found to be the most frequently mentioned and sexual health was the second. The least mentioned category was personal skills. Finally, sites operated by private organization were found to have more accurate information and better design feature than those operated by public organization and/or individual.

Adolescents are captivated with web sites as an educational resources. From a health education perspective, the capacity of this medium to provide excellent sexuality information is extraordinary. However, the fact that anyone can publish on the web sites can lead to an abundance of erroneous sexuality information being available. To ensure proper information use, adolescents must be able to separate credible sites from non-credible sites.

Evaluation of web sites on sexuality education for adolescents could help reduce the dissemination of misleading, inaccurate and false sexuality information to adolescents. It would be a possible task for a panel of reviewers to evaluate all web sites.

The results of this study would be to raise standards not only of readers but also of web publishers by recommending that health educators and other health professionals who publish sexuality-related web pages consider

the elements of quality sexuality-related site prior to constructing such a site.

In short, the internet offers millions of teens a chance to take control of their sexual learning. Instead of viewing the internet as a threat to school programs, educators should view the development of web sites on sexuality education as an opportunity to strengthen school-based sexuality education programs and make them more relevant to students' needs.

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## ABSTRACT

**Objectives:** The aim of this study was to assess the quality of the information and characteristics associated with information packaging, and develop suggestions for how this web site might be improved.

**Methods:** The 50 sites were selected for evaluation. Inclusion criteria for evaluation were the purpose and the popularity of the sites. Two kinds of evaluation tool were employed for the analysis: one that evaluate the quality of information and the design of the web sites, and another that evaluate the covered contents. A scoring system allowed the sites point on yes/no basis on the evaluation items. The association between quality of the web sites on sexuality education and their site characteristics were assessed using ANOVA.

**Conclusions:** Major conclusions were as follows. First, the scope and currency of the selected web sites were found to be appropriate. Second, the authority of the information was found to be the most serious problem of the selected sites. Third, the category of sexual behavior found to be the most frequently mentioned and sexual health was the second. The least mentioned category was personal skills. Finally, sites operated by private organization were found to have more accurate information and better design feature than those operated by public organization and/or individual.

**Key Words:** Evaluation, Sexuality Education, Web Sites, Adolescents