Developing the information literacy self-efficacy scale

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Abstract

Purpose – The main aim of this paper is to describe the development of a scale designed to measure self-efficacy for information literacy.

Design/methodology/approach – Cronbach's alpha, item analysis and item discrimination indices, principal component analysis, varimax rotation, and discriminant validity were used to measure reliability and validity of the scale. A 28-item refined version of the scale was found highly reliable and of reasonable length.

Findings – Further refinement based on principal component analysis indicated three major components, which allow approaching information literacy skills regarding to their complexity levels.

Originality/value – The information literacy self-efficacy scale is recommended to identify individuals with low self-efficacy beliefs, which may be a significantly limiting factor for them to explore their information literacy skills.

Keywords Information literacy, Measurement, testing and instruments, Skills, Turkey

Paper type Research paper

Introduction

Todays' societies, the most salient characteristic of which is the continuous change, have often been considered as the information societies. As the amount of information increases, technology gains momentum, the use of technology is becoming widespread and societies are restructuring themselves in ways that react to these changes. It has become obligatory for any individual of the information societies to have lifelong learning skills to keep up with the changes and get acquainted with the new developments.

Information literacy

Societies of information age need confident, and independent learners equipped with lifelong learning-skills. Self-regulated learning and information literacy are key skills required not only for lifelong learning but also for success in the information-based societies. An information literate individual knows how to learn and is capable of continuing lifelong learning. Information literacy is the term being applied to the skills of information problem solving (American Library Association, 2000). The use of information problem solving skills, in other words, information literacy skills is becoming the necessary intellectual ingredient of any individual's life.

Information literacy incorporates the abilities to recognize when information is needed and then to initiate search strategies designed to locate the needed information. It includes evaluating, synthesizing, and using information appropriately, ethically, and legally once it is accessed from any media, including electronic or print sources. It also includes communicating and sharing the results of the information problem-solving efforts accurately and creatively across the range of information

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formats, and evaluating how well the final product resolved the information problem and how appropriate and efficient the steps taken to reach the desired outcome. Furthermore, an information literate individual devises strategies for updating self-generated knowledge and recognizes the principles of intellectual freedom and equitable access to information (American Association of School Librarians and Association for Educational Communications and Technology, 1998); Association of College and Research Libraries, 2000; Association of College and Research Libraries, 2000; see also: Australian and New Zealand Institute for Information Literacy, 2004; Doyle, 1994; Society of College, National and University Libraries, 1999; Spitzer *et al.*, 1998).

Self-efficacy and its importance for information literacy and lifelong learning

According to Bandura (1977) success is not only based on the possession of necessary skills, it also requires the confidence to use these skills effectively. In other words, learning certain skills is not enough, individuals should also develop confidence in the skills that they are learning. Hence, besides possessing information literacy skills individuals of today's societies must also feel competent and confident in the use of these skills. Therefore, attainment of high sense of self-efficacy beliefs is as important as possessing information literacy skills.

Self-efficacy refers to a belief in one's ability to successfully perform a particular behaviour or task (Cassidy and Eachus, 1998). Bandura (1997) defines self-efficacy as a belief in one's capabilities to organize and execute the course of action required to attain a goal. Self-efficacy beliefs provide the foundation for human motivation, well being, and personal accomplishment. People have little incentive to act, if they believe that the task in their hands, exceed their capabilities, but they undertake and perform activities if they believe that their actions can produce the desired outcomes (Bandura, 1977, 1986; Pajares, 2002; Koul and Rubba, 1999; Cassidy and Eachus, 1998). In other words, people tend to perform tasks and activities in which they feel competent and confident and avoid those in which they do not (Kear, 2000; Pajares, 2002).

Self-efficacy beliefs determine how long individuals will persevere and how resilient they will be in the face of difficulties and how much effort they will expend on an activity. Individuals with a high self-efficacy perception expect to succeed and will persevere in an activity until it is completed. On the contrary, individuals with low self-efficacy perception, anticipate failure and are less likely to persist doing challenging activities. The higher the sense of efficacy, the greater the effort, persistence, and resilience (Pajares, 2002; Kear, 2000), which are two factors crucial for information problem solving, self-regulated learning, and lifelong-learning. Bandura underlines that individuals who develop a strong sense of self-efficacy are well equipped to educate themselves when they have to rely on their own initiative (Bandura, 1986). This is why strong self-efficacy perception for information literacy becomes a necessity to accomplish lifelong learning.

Self-efficacy influences human functioning. Although the knowledge and skills people possess play critical roles on the choices they make, people's level of motivation, and actions are based more on what they believe than on what is objectively true (Bandura, 1997; Kear, 2000; Pajares, 2002). That is one reason why self-efficacy is so important for lifelong learning. If individuals feel themselves competent and confident about their information literacy skills they will willingly undertake and easily solve

information problems. Otherwise, it is more likely that they will avoid and hesitate to try solving information problems in their hands.

Because self-efficacy is based on self-perceptions regarding particular behaviours, the construct is considered to be situation specific or domain sensitive. That is, an individual may exhibit high levels of self-efficacy within one domain while exhibiting low levels within another one (Cassidy and Eachus, 1998). Thus, self-efficacy has generated research in areas as diverse as medicine, business, psychology, education and computers (Kear, 2000; O'Leary, 1985; Lev, 1997; Schunk, 1985; Koul and Rubba, 1999; Delcourt and Kinzie, 1993; Karsten and Roth, 1998; Compeau and Higgins, 1995; Geer *et al.*, 1998). However, the number of the research regarding self-efficacy for information literacy, are few in number (Akkoyunlu and Kurbanoglu, 2003; Kurbanoglu, 2003; Kurbanoglu and Akkoyunlu, 2003).

Measuring self-efficacy

Perceived self-efficacy refers to an identified level and strength of self-efficacy (Kear, 2000). The strength of self-efficacy is measured by degrees of certainty that one can perform given tasks (Zimmerman, 1995). Therefore, self-efficacy demands to be measured directly (rather than indirectly) by the use of self-report scales (Cassidy and Eachus, 1998). Preparation of self-efficacy scales requires time and patience. One must be certain to measure the self-efficacy beliefs relevant to the behavior in question (Pajares, 2002).

There are a number of scales, which have been developed to measure perceived self-efficacy in different context such as computer literacy (see, Cassidy and Eachus, 1998; Compeau and Higgins, 1995; Lloyd and Gressard, 1984; Delcourt and Kinzie, 1993) and teaching efficacy (see, Tschannen-Moran and Woolfolk Hoy, 2001; Henson *et al.*, 2001; Koul and Rubba, 1999). However, no self-efficacy scale for information literacy found in the literature.

The necessity for the development of such a scale relates to the impact information literacy is having on many aspects of life and in particular on lifelong learning. Increasingly individuals of information societies are expected to be proficient users of information. Low self-efficacy may be a significantly limiting factor for individuals exploring information problem-solving skills vital for lifelong learning. The development of an appropriate measure of self-efficacy for information literacy will enable individuals "at risk" to be identified.

Method

The aim of the study

The main aim of this study is to describe the development of an information literacy self-efficacy scale (ILSES) designed to measure self-efficacy for information literacy and find out how well the instrument measures what it claims to assess.

Participants

Participants included randomly chosen 415 teachers from various branches. The response rate of the participants was 90 percent (374 teachers) of whom 62 percent were female, and 38 percent were male. The participants ranged in age from 20 to 52 years (mean = 34.5, SD = 2.2) were from five private and 14 public schools, of which 60.4 percent taught primary level, and 39.6 percent taught secondary level.

Statistical analysis

Following statistical analysis were carried out: First, item analysis and item discrimination indices were used to address the validity of the items on the scale, that is, the extent to which the items tap the attributes they were intended to assess. Second, Principal Components Analysis (PCA) and varimax rotation were carried out to determine the construct of the scale and last, discriminant validity was used to determine the validity for the subscales.

Developing the research instrument – phase one

In the first stage literature in the domain was reviewed and seven main categories, A. Defining the need for information, B. Initiating the search strategy, C. Locating and accessing the resources, D. Assessing and comprehending the information, E. Interpreting, synthesizing, and using the information, F. Communicating the information, G. Evaluating the product and process, were named[1].

Covering each category 40 statements, such as: I feel confident and competent "to define the information I need", "to identify a variety of potential sources of information", " to locate information sources in the library", "to initiate search strategies by using keywords and Boolean logic", "to evaluate www sources", and "to prepare a bibliography", were developed. A seven-point Likert scale, anchored with notations: 7 = almost always true, 6 = usually true, 5 = often true, 4 = occasionally true, 3 = sometimes but infrequently true, 2 = usually not true, 1 = almost never true was used to design the instrument (see Appendix 1). The instrument[2] was field-tested with 50 teachers. The alpha reliability coefficient (0,78) signifying that the scale was reliable.

Following the initial field-testing stage, participants, 374 teachers representing different levels and branches from both public and private schools, were required to indicate their level of confidence to each statement along the seven-point Likert scale. Internal consistency of the 40-item scale as calculated by Cronbach's alpha was quite high (0,84).

Developing the research instrument – phase two

On the second stage, item analyses conducted on data collected in order to find out about the item validity. Item discrimination indices for each item were calculated (see Table I). Discrimination indices of the 40 items in the scale ranged from −0.397 to 0.876. After the elimination of 12 items (C10, C14, C15, D17, D18, D19, D20, D22, E27, E28, F31, F38) item validity indices of which are less than 0.20, median of the item validity for the rest of the scale increased to 0.495. Internal consistency of the 28-item scale as calculated by Cronbach's alpha was also higher (0.92). This indicates that refined 28-item instrument measures self-efficacy for information literacy better.

Developing the research instrument – phase three

In the third stage, in order to explore the main components and the structure of information literacy, further principal component analyses, factor loadings of which are presented on Table II, run on the refined 28-item scale. Principal component analysis extraction along with the Varimax rotation indicated the presence of three components as well as indicating items, Eigenvalue is less than 1.5, which loaded poorly on all factors. Of the 28 construct items, 17 loaded well on three components. In

Item no.		Item no	
A1	0.467	D21	0.220
B2	0.630	D22	−0.113
B3	0.438	D23	0.270
B4	0.591	D24	0.315
C5	0.730	D25	0.769
C6	0.496	E26	0.415
C7	0.243	E27	0.010
C8	0.425	E28	−0.004
C9	0.397	E29	0.617
C10	0.156	F30	0.508
C11	0.581	F31	0.122
C12	0.876	F32	0.501
C13	0.494	F33	0.485
C14	0.148	F34	0.499
C15	0.146	F35	0.635
D16	0.713	F36	0.711
D17	−0.128	F37	0.459
D18	−0.264	F38	0.143
D19	−0.397	G39	0.429
D20	−0.142	G40	0.374

Table I.
Item discrimination indices of the 40-item scale

total, 11 items did not load well. Thus, through the process of selection based on factor loading the 28-item scale was refined to 17-item, reliability of which is calculated 0.82. It is especially worthy that 17-item refined scale, which can be used to determine subjects' self-efficacy levels for information literacy, exhibits high reliability without excessive length.

Three components extracted as a result of the principal component analysis were examined and labeled based on Bloom's taxonomy and learning principles. Component 1, which was comprised of either items related to defining, selecting, interpreting, communicating information and learning from experience, is labeled as intermediate information literacy skills. Component 2 was labeled as basic information literacy skills. The five items loaded on this component were related to finding and using information. Component 3 was labeled as advanced information literacy skills. This component was made up of four items related to synthesizing information and evaluating the information problem solving process and its products. Undoubtedly, classifying information literacy skills from basic to advanced enables information literacy instructors to address them accordingly in their instruction programs (see Table III).

Developing the research instrument – phase four

Following the scale refinement process, discriminant validity of the subscales, both for 28-item and 17-item scales, was also assessed by comparing total self-efficacy scores across the subscale scores. The emergence of the positive correlation of the subscales (see Tables IV and V) suggested that both 28-item and 17-item scales could be considered to measure the underlying construct of efficacy and that subscale scores as

Items		Component 1	2	3
A 1	Define the information I need	0.463	0.060	0.231
B 2	Identify a variety of potential sources of information	0.484	0.250	0.304
B 3	Limit search strategies by subject, language and date	0.189	0.379	0.219
B 4	Initiate search strategies by using keywords and Boolean logic	0.156	0.573	0.443
C 5	Decide where and how to find the information I need	0.511	0.608	0.158
C 6	Use different kinds of print sources (i.e. books, periodicals, encyclopedias, chronologies, etc.)	0.276	0.572	0.024
C 7	Use electronic information sources	−0.034	0.535	−0.042
C 8	Locate information sources in the library	0.044	0.511	0.329
C 9	Use library catalogue	−0.035	0.627	0.149
C 11	Locate resources in the library using the library catalogue	0.272	0.481	0.285
C 12	Use internet search tools (such as search engines, directories, etc.)	0.657	0.457	0.444
C 13	Use different kinds (types) of libraries	0.311	0.315	0.304
D 16	Use many resources at the same time to make a research	0.466	0.470	0.341
D 21	Determine the authoritativeness, currentness and reliability of the information sources	0.060	0.322	−0.102
D 23	Select information most appropriate to the information need	0.639	−0.038	−0.335
D 24	Identify points of agreement and disagreement among sources	0.254	0.135	0.151
D 25	Evaluate www sources	0.671	0.430	0.213
E 26	Synthesize newly gathered information with previous information	0.205	0.084	0.444
E 29	Interpret the visual information (i.e. graphs, tables, diagrams)	0.547	0.171	0.254
F 30	Write a research paper	0.588	0.328	−0.141
F 32	Determine the content and form the parts (i.e. introduction, conclusion) of a presentation (written, oral)	0.194	0.086	0.752
F 33	Prepare a bibliography	0.732	−0.115	0.132
F 34	Create bibliographic records and organize the bibliography	0.059	0.212	0.753
F 35	Create bibliographic records for different kinds of materials (i.e. books, articles, thesis, papers, web pages)	0.616	0.149	0.338
F 36	Make citations and use quotations within the text	0.679	0.181	0.339
F 37	Choose a format (i.e. written, oral, visual) appropriate to communicate with the audience (i.e. students, colleagues)	0.293	0.399	0.035
G 39	Learn from my information problem solving experience and improve my information literacy skill	0.422	0.107	0.185
G 40	Criticize the quality of my information seeking process and its products	0.284	−0.150	0.623

Table II.
Rotated component matrix (eigenvalues over 1.5)

Table III.
A 17-item refined scale (final version)

Items		
	Intermediate information literacy skills	
1	A 1	Define the information I need
2	D 23	Select information most appropriate to the information need
3	E 29	Interpret the visual information (i.e. graphs, tables, diagrams)
4	F 30	Write a research paper
5	F 33	Prepare a bibliography
6	F 35	Create bibliographic records for different kinds of materials (i.e. books, articles, thesis, web pages)
7	F 36	Make citations and use quotations within the text
8	G 39	Learn from my information problem solving experience and improve my information literacy skill
	Basic information literacy skills	
9	C 6	Use different kinds of print sources (i.e. books, periodicals, encyclopedias, chronologies, etc.)
10	C 7	Use electronic information sources
11	C 8	Locate information sources in the library
12	C 9	Use library catalogue
13	C 11	Locate resources in the library using the library catalogue
	Advanced information literacy skills	
14	E 26	Synthesize newly gathered information with previous information
15	F 32	Determine the content and form the parts (i.e. introduction, conclusion) of a presentation (written, oral)
16	F 34	Create bibliographic records and organize the bibliography
17	G 40	Criticize the quality of my information seeking process and its products

Table IV.
Discriminant validity of subscales for 28-item scale

A	B	C	D	E	F	G
0.47	0.57	0.56	0.46	0.58	0.61	0.43

Table V.
Discriminant validity of subscales for 17-item scale

A	C	D	E	F	G
0.52	0.72	0.54	0.60	0.89	0.57

well as a total score could be calculated. Thus, both the subscale scores and the total score can be used to assess efficacy.

Developing the research instrument – phase five

On this stage, in order to make ILSES available to English speaking researchers English version of the refined scale was also prepared. 47 students from the Department of English Translation and Interpretation were required to reply both Turkish and English versions of the scale. Test-retest of the items in the 28-item and 17-item scales was calculated as 0.91 and 0.81, respectively (see Tables VI and VII). Correlation coefficients of test-retest indicated the reliability of the English version for both.

Item no.	r	Item no.	r
1	0.75	16	0.76
2	0.82	17	0.73
3	0.71	18	0.74
4	0.70	19	0.73
5	0.76	20	0.79
6	0.83	21	0.78
7	0.70	22	0.70
8	0.83	23	0.78
9	0.73	24	0.78
10	0.74	25	0.76
11	0.69	26	0.76
12	0.69	27	0.67
13	0.73	28	0.80
14	0.64		
15	0.71	Overall	0.91

Table VI. Correlation coefficient of test-retest of the 28-item scale

Item no.	r	Item no.	r
1	0.82	11	0.84
2	0.82	12	0.79
3	0.85	13	0.74
4	0.86	14	0.85
5	0.84	15	0.79
6	0.83	16	0.82
7	0.89	17	0.78
8	0.83		
9	0.81		
10	0.78	Overall	0,81

Table VII. Correlation coefficient of test-retest of the 17-item scale

Conclusions and suggestions

Although the reliability of the 40-item scale was reasonable (0.84), item analysis to find out about the item validity indicated that there were items in the 40-item scale, which either repeated each other or did not measure well-enough the related category. Based on the results of this analysis, the scale was refined into 28-item, and the use of 40-item scale is not recommended although it seems like 40-item scale is more comprehensive and there are missing items in the refined versions of the scale (such as "oral presentation" for the communication category). The results indicated that 28-item scale, with the highest Cronbach's alpha (0.92 for the Turkish version and 0.91 for the English version) among the three versions, could be considered highly reliable. It is of reasonable length and should prove to be a useful tool for researchers who are interested in measuring individual's self-efficacy levels for information literacy. The use of 28-item scale is highly recommended to identify individuals with low self-efficacy beliefs, which may be a significantly limiting factor for them to explore their information literacy skills.

A further principal component analysis, which indicated 17 items loaded on three main components, was carried out for exploring the components and the construct of information literacy. The main aim of this analysis was to find out whether it was possible to present a different approach to the construction of information literacy skills. Three components indicated by the principal component analysis, which were labelled as basic, intermediate and advanced, could provide a guide for information literacy instructors. Information literacy instruction programs could be examined to determine whether and how these components are being addressed and conscious effort could be made to address them according to their complexity level. A 17-item scale is recommended for those who like to approach information literacy skills regarding to their complexity levels based on learning principles (see Appendix 1-3, Tables AI-AIII.

Notes

1. Previously published definitions and standards for information literacy were carefully considered and compared. Seven categories labeled based on the common points withdrawn mainly from Doyle's Rubrics for Information Literacy (Doyle, 1994), AASL & AECT's Information Literacy Standards for Student Learning (American Association of School Librarians and Association for Educational Communications and Technology, 1998), ACRL's Information Literacy Competency Standards for Higher Education (Association of College and Research Libraries, 2000), the Big6 Approach to Information Problem Solving (Spitzer *et al.*, 1998), SCONUL's Seven Pillar Information Literacy Model (Society of College, National and University Libraries, 1999) and ANZIL's Information Literacy Standards (Australian and New Zealand Institute for Information Literacy, 2004).
2. Initial version of this scale was developed and used by the researchers (see Akkoyunlu and Kurbanoglu, 2003; Kurbanoglu, 2003). Since then the instrument has been revised and gone through a number of changes.

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Appendix 1

Table AI.
Information literacy self-efficacy scale – 40-item initial version

	I feel confident and competent to							
A1	Define the information I need	1	2	3	4	5	6	7
B2	Identify a variety of potential sources of information	1	2	3	4	5	6	7
B3	Limit search strategies by subject, language and date	1	2	3	4	5	6	7
B4	Initiate search strategies by using keywords and Boolean logic	1	2	3	4	5	6	7
C5	Decide where and how to find the information I need	1	2	3	4	5	6	7
C6	Use different kinds of print sources (such as books, periodicals, encyclopedias, chronologies, etc.)	1	2	3	4	5	6	7
C7	Use electronic information sources	1	2	3	4	5	6	7
C8	Locate information sources in the library	1	2	3	4	5	6	7
C9	Use library catalogue	1	2	3	4	5	6	7
C10	Interpret information on the library catalogue	1	2	3	4	5	6	7
C11	Locate resources in the library using the library catalogue	1	2	3	4	5	6	7
C12	Use internet search tools (such as search engines, directories, etc.)	1	2	3	4	5	6	7
C13	Use different kinds (types) of libraries	1	2	3	4	5	6	7
C14	Use different kinds of library catalogues (i.e. card catalogues, online catalogues)	1	2	3	4	5	6	7
C15	Use/search indexes and electronic databases	1	2	3	4	5	6	7
D16	Use many resources at the same time to make a research	1	2	3	4	5	6	7
D17	Differentiate between fact and opinion	1	2	3	4	5	6	7
D18	Recognize errors in logic	1	2	3	4	5	6	7
D19	Classify the information	1	2	3	4	5	6	7
D20	Recognize interrelationships among concepts	1	2	3	4	5	6	7
D21	Determine the authoritativeness, currentness and reliability of the information sources	1	2	3	4	5	6	7
D22	Evaluate information critically	1	2	3	4	5	6	7
D23	Select information most appropriate to the information need	1	2	3	4	5	6	7
D24	Identify points of agreement and disagreement among sources	1	2	3	4	5	6	7
D25	Evaluate www sources	1	2	3	4	5	6	7
E26	Synthesize newly gathered information with previous information	1	2	3	4	5	6	7
E27	Synthesize and summarize information gathered from different sources	1	2	3	4	5	6	7
E28	Paraphrase the information	1	2	3	4	5	6	7
E29	Interpret the visual information (i.e. graphs, tables, diagrams)	1	2	3	4	5	6	7
F30	Write a research paper	1	2	3	4	5	6	7
F31	Make an oral presentation	1	2	3	4	5	6	7
F32	Determine the content and form the parts (introduction, conclusion) of a presentation (written, oral)	1	2	3	4	5	6	7
F33	Prepare a bibliography	1	2	3	4	5	6	7

(*continued*)

I feel confident and competent to								
F34	Create bibliographic records and organize the bibliography	1	2	3	4	5	6	7
F35	Create bibliographic records for different kinds of materials (i.e. books, articles, web pages)	1	2	3	4	5	6	7
F36	make citations and use quotations within the text	1	2	3	4	5	6	7
F37	Choose a format (i.e. written, oral, visual) appropriate to communicate with the audience	1	2	3	4	5	6	7
F38	Determine the level appropriate to communicate with the audience	1	2	3	4	5	6	7
G39	Learn from my information problem solving experience and improve my information literacy skill	1	2	3	4	5	6	7
G40	Criticize the quality of my information seeking process and its products	1	2	3	4	5	6	7

Notes: This scale has been prepared to determine your level of efficacy on issues related with the information (to find, use and communicate information) Here the notations shall be referred to as 7 = almost always true, 6 = usually true, 5 = often true, 4 = occasionally true, 3 = sometimes but infrequently true, 2 = usually not true, 1 = almost never true. Please mark the most suitable choice for you. Thanks for your cooperation. A = Defining the need for information B = Initiating the search strategy C = Locating and accessing the resources D = Assessing and comprehending information E = Interpreting, synthesizing, and using information F = Communicating Information G = Evaluating the product and process

Table AI.

Appendix 2

	I feel confident and competent to							
A1	Define the information I need	1	2	3	4	5	6	7
B2	Identify a variety of potential sources of information	1	2	3	4	5	6	7
B3	Limit search strategies by subject, language and date	1	2	3	4	5	6	7
B4	Initiate search strategies by using keywords and Boolean logic	1	2	3	4	5	6	7
C5	Decide where and how to find the information I need	1	2	3	4	5	6	7
C6	Use different kinds of print sources (i.e. books, periodicals, encyclopedias, chronologies, etc.)	1	2	3	4	5	6	7
C7	Use electronic information sources	1	2	3	4	5	6	7
C8	Locate information sources in the library	1	2	3	4	5	6	7
C9	Use library catalogue	1	2	3	4	5	6	7
C10	Locate resources in the library using the library catalogue	1	2	3	4	5	6	7
C11	Use internet search tools (such as search engines, directories, etc.)	1	2	3	4	5	6	7
C12	Use different kinds (types) of libraries	1	2	3	4	5	6	7
D13	Use many resources at the same time to make a research	1	2	3	4	5	6	7
D14	Determine the authoritativeness, currentness and reliability of the information sources	1	2	3	4	5	6	7
D15	Select information most appropriate to the information need	1	2	3	4	5	6	7
D16	Identify points of agreement and disagreement among sources	1	2	3	4	5	6	7
D17	Evaluate www sources	1	2	3	4	5	6	7
E18	Synthesize newly gathered information with previous information	1	2	3	4	5	6	7
E19	Interpret the visual information (i.e. graphs, tables, diagrams)	1	2	3	4	5	6	7
F20	Write a research paper	1	2	3	4	5	6	7
F21	Determine the content and form the parts (introduction, conclusion) of a presentation (written, oral)	1	2	3	4	5	6	7
F22	Prepare a bibliography	1	2	3	4	5	6	7
F23	Create bibliographic records and organize the bibliography	1	2	3	4	5	6	7
F24	Create bibliographic records for different kinds of materials (i.e. books, articles, web pages)	1	2	3	4	5	6	7
F25	Make citations and use quotations within the text	1	2	3	4	5	6	7
F26	Choose a format (i.e. written, oral, visual) appropriate to communicate with the audience	1	2	3	4	5	6	7
G27	Learn from my information problem solving experience and improve my information literacy skill	1	2	3	4	5	6	7
G28	Criticize the quality of my information seeking process and its products	1	2	3	4	5	6	7

Notes: This scale has been prepared to determine your level of efficacy on issues related with the information (to find, use and communicate information) Here the notations shall be referred to as 7 = almost always true, 6 = usually true, 5 = often true, 4 = occasionally true, 3 = sometimes but infrequently true, 2 = usually not true, 1 = almost never true. Please mark the most suitable choice for you. Thanks for your cooperation. A = Defining the need for information B = Initiating the search strategy C = Locating and accessing the resources D = Assessing and comprehending information E = Interpreting, synthesizing, and using information F = Communicating Information G = Evaluating the product and process

Table AII.
Information literacy self-efficacy scale – 28-item version

Appendix 3

I feel confident and competent to								
C1	Use different kinds of print sources (i.e. books, periodicals, encyclopedias, chronologies, etc.)	1	2	3	4	5	6	7
C2	Use electronic information sources	1	2	3	4	5	6	7
C3	Locate information sources in the library	1	2	3	4	5	6	7
C4	Use library catalogue	1	2	3	4	5	6	7
C5	Locate resources in the library using the library catalogue	1	2	3	4	5	6	7
A6	Define the information I need	1	2	3	4	5	6	7
D7	Select information most appropriate to the information need	1	2	3	4	5	6	7
E8	Interpret the visual information (i.e. graphs, tables, diagrams)	1	2	3	4	5	6	7
F9	Write a research paper	1	2	3	4	5	6	7
F10	Prepare a bibliography	1	2	3	4	5	6	7
F11	Create bibliographic records for different kinds of materials (i.e. books, articles, web pages)	1	2	3	4	5	6	7
F12	Make citations and use quotations within the text	1	2	3	4	5	6	7
G13	Learn from my information problem solving experience and improve my information literacy skill	1	2	3	4	5	6	7
E14	Synthesize newly gathered information with previous information	1	2	3	4	5	6	7
F15	Determine the content and form the parts (introduction, conclusion) of a presentation (written, oral)	1	2	3	4	5	6	7
F16	Create bibliographic records and organize the bibliography	1	2	3	4	5	6	7
G17	Criticize the quality of my information seeking process and its products	1	2	3	4	5	6	7

Notes: This scale has been prepared to determine your level of efficacy on issues related with the information (to find, use and communicate information) Here the notations shall be referred to as 7 = almost always true, 6 = usually true, 5 = often true, 4 = occasionally true, 3 = sometimes but infrequently true, 2 = usually not true, 1 = almost never true. Please mark the most suitable choice for you. Thanks for your cooperation. A = Defining the need for information B = Initiating the search strategy C = Locating and accessing the resources D = Assessing and comprehending information E = Interpreting, synthesizing, and using information F = Communicating Information G = Evaluating the product and process

Table AIII. Information literacy self-efficacy scale – 17-item version

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