The Development of Media Literacy for Undergraduate Students: A Second Order Confirmatory Factor Analysis

El desarrollo de la alfabetización mediática para estudiantes de pregrado: un análisis factorial confirmatorio de segundo orden

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ABSTRACT:

This study aimed to development of media literacy for undergraduate students. The sample comprised 469 students enrolled in undergraduate students. The selection was the result of multi-stage random sampling from who registered in the General Education of academic year 2019. The instrument was a questionnaire from on media literacy components for undergraduate students. The question items employed a 5-point Likert scale; a range of item-objective congruence (IOC) between 0.80-1.00; and a reliability coefficient of 0.83. The data were analyzed using descriptive statistic for general data and second order confirmatory factor analysis via LISREL. The finding revealed that from 20 observed variables, there were 6 components: 1) Access 2) Analysis 3) Use 4) Evaluation 5) Creation and 6) Reflection.
Keywords: Media Literacy, General Education, Undergraduate Students, Confirmatory Factor Analysis

RESUMEN:

Este estudio tuvo como objetivo el desarrollo de la alfabetización mediática para estudiantes de pregrado. La muestra comprendió 469 estudiantes matriculados en estudiantes de pregrado. La selección fue el resultado de un muestreo aleatorio en varias etapas de quienes se inscribieron en la Educación General del año académico 2019. El instrumento fue un cuestionario de componentes de alfabetización mediática para estudiantes de pregrado. Los ítems preguntados emplearon una escala Likert de 5 puntos; un rango de congruencia de elemento-objetivo (COI) entre 0.80-1.00; y un coeficiente de fiabilidad de 0,83. Los datos se analizaron usando estadística descriptiva para datos generales y análisis factorial confirmatorio de segundo orden a través de LISREL. El hallazgo reveló que de 20 variables observadas, hubo 6 componentes: 1) Acceso 2) Análisis 3) Uso 4) Evaluación 5) Creación y 6) Reflexión.
Palabras clave: Alfabetización Mediática, Educación General, Estudiantes de Pregrado, Factor Confirmatorio. Análisis

1. Introduction

The underlying cause of the rapid social and economic changes of our world is the advancement made in science and technology, as well as the birth of the internet, which allows our world to spin at a much faster rate. More and more new information is overwhelmingly streaming into our perception at every second. The advanced technology and equipment bring forth more convenient daily life and communication, where everything can be accomplished with the touch of a finger.

The access to the internet makes this world much smaller. Events that occurred in one part of the world can be learned instantly by other people in other parts of the world. Similarly, there is some evidence that media literacy education may disrupt other forms of bias. Babad and Hobbs, (2012) examined teens' non-verbal processing of political news. The people may always now have a face to face conversation, even when they are on separated countries or continents. Contemporary framing of children's use of media and technology has been undergoing a transformation that has resulted from the rise of the Internet and the availability of ubiquitous wireless broadband (Aspen Institute Task Force on Learning and the Internet, 2014). For many years, children's immersion in digital media texts and technologies, and the larger media culture in which they circulate has long interested professionals in human development, communication and media studies, and education (Anderson & Hanson, 2010). Many scholars have examined how media literacy may support healthy lifestyles among children and teens (Domine, 2015). On the other hand, looking at the potentially harmful effect of media, it is undeniable that the potential harmful effects are exceeding the potential benefits by far, especially when individuals aren't seeing through the media. According to the news reported on television, newspaper, or even the internet, there are many victims of media. More importantly, most of these victims are children at the learning ages. The Electronic Transaction Development Agency, Thailand (2018) reports statistical data on the behavior of using social media of people in Thailand. They revealed that the adolescences, at the age of 12 – 19 years old, spent around 10 hours a day serving the internet. The most popular channels were those social media, such as Website, Facebook, Chat Messenger, YouTube etc. Over 35 percent of these adolescences became the victims of the media, such as the imitation of inappropriate behaviors and the loss of their potential future or even their life. This was all due to the fact that these adolescences didn't understand or having the proper media literacy. Parents, classroom educators and researchers may differ in their perceptions of the risks and rewards of integrating digital media into the context of public education (Howard, 2010; Livingstone, 2012). Although quality of access is uneven, schools are increasingly likely to provide learners with wireless Internet access throughout the K-12 spectrum. More and more schools use tablets, laptops and other digital media as a part of instruction, where children are encouraged to use information sources and interact with digital texts and technologies (Bakia et al., 2011). Since the birth of social media in 2007, there has been the widespread understanding among parents, educators and future employers that digital literacy competencies are required to use the Internet and social media (Hobbs ,2017).

Because of the importance of media literacy, many organizations, including the Aspen Media Literacy Leadership Institute (1992), the American Library Association (2000), and UNESCO (2013) jointly presented the concept of media literacy under the scope of information learning, with the core ideas including: 1) accessing, 2) analyzing, 3) utilizing, and 4) assessing. After the world stepped into the 21st Century, The Partnership for 21st Century Learning (2015) added other ideas to the concept that they recognized as important ideas for the living, where students may cultivate the life skills, such as critical thinking skill, information and communication technology skill, etc. These skills also emphasize on the basic level of media literacy. Many member nations of the organization were interested in this issue, as a result of the fast-paced development of the communication technology (Baran, 2014) Therefore, the media literacy skill requires the studying and understanding of methods that allow individuals to protect themselves from being influenced or persuaded by the media, by practicing and improving their abilities to analyze the media with good judgment. Media literacy allows the people to control their interpretation of the media's content or their interactions, as well as allowing them to understand the media and not becoming unwilling victims of the media. Celot and Varis (2007) remarked that media literacy is the ability to "use the media consciously" and "use the media actively"; and that media literacy is an important ability that prevents us from blindly believing the content we read or heard, and to use our thought process to analyze and to ask the critical questions, namely, are those real or not, what are the purposes of the storyteller, or if there are any hidden agendas? Media literacy is a frequently discussed social subject, in the age where communication goes fast and wide, with various available – highly efficient modes of communication.

One the world steeped into the 21st Century, the education system has changed as well, whereas the focus is now placed on cultivating life skills in students. Every country around the world emphasizes and actively integrates important life skills in their curriculums, by integrating these new skills to the original learning activity that mainly focuses on studying from textbooks, to the less in-class learning and more hand-on experiencing and practicing. The purposes are to encourage students to learn about the world, finance, economics, information and communication technology, knowledge about becoming a good citizen, health literacy, environmental literacy, etc. The Partnership for 21st Century Learning (2015). According to the aforementioned remarks, the

author recognizes the importance of media literacy, applies the concept with the learning style, and uses the result to further be improving the learning style that promotes the concept of learning management, in accordance with the principle for undergraduate students.

1.1. Objective

To analyze media literacy components for undergraduate students.

1.2. Literature review

Media Literacy

Literacy is an ever-evolving concept. In the beginning, this word means the ability to read and write and it connects with the people's right of education. Later, the concept and definition of literacy are improved and adjusted, as a response to the changes in technology, economy, society, and politics. UNESCO (2013) recommendation in 1975 that concurrently in United States of America, Europe, Australia, South Africa, and Asia, with the support of the United Nations, every educational institution around the world should develop their curriculum to include the subject of media literacy, for students in primary schools to higher education, in order to cultivate the students with the ability they can use to solve the problem and make their decisions, without becoming victims, as well as to recognize and separate good and bad media on their own. Media literacy consists of many dimensions, namely, the perception, understanding, emotion, aesthetics, morals, and values. Media literacy education offers the potential to reveal how media reproduce inequalities. Critical inquiry practices help learners gain distance from their everyday and often unquestioned media use, seeing their own behavior in a new way. Such forms of learning may have the potential to contribute to renewing active citizenship for participation in democratic societies (Mihailidis, 2014). The underlying objective of media literacy is for people to be capable of interpreting the message they received (Potter, 2010). They posited that teacher motivations for digital and media literacy might differentially shape instructional practices, as some teachers brought more student centered, affective orientations into their approach to media literacy. Building on this research, a 48-item measure of teacher motivations for digital and media literacy was tested and validated among a large sample of 2,800 teachers in Turkey (Hobbs & Tuzel, 2015).

According to UNESCO (2013) remarked that media literacy is the ability of individuals to not blindly believe the things they heard or saw or received but to start analyzing and asking the questions, in terms of whether the stories are real or not, who gives them the information and what are his or her purposes for doing so, or is there any hidden agenda, as well as how trustworthy is the information source and who may gain or loss their interest from the stories. This widely acclaimed definition includes three main skills-access, analyze and evaluation-as well as using media literacy framework. Hobbs, (2011) highlights the media literacy in the new century, where the status of the sender and the receiver of the message have now changed, whereas both parties became the sender and the receiver simultaneously. Livingstone, (2004) remarked about a media era of rapid technological transformations, a definition of media literacy independent of media tools at use is highly functional and significant. However, these technologies are typically utilized with a 20th-century approach to media that puts students in the position of consumers rather than creators of media (Shirley, 2010). This is a cause for concern; some media scholars argue that the production of digital media offers students a chance to explore and deepen their own thinking about and relationship with media (SAVINA, et al.,2018; SCHELKUNOV, et al.,2019; TOBÍAS-MARTÍNEZ, M.A., & FUENTES-ESPARRELL, J.A. 2019). The experiences in the digital revolution and the process of formation of information society reveal that people tend to adopt new technologies they encounter without questioning. Pérez Tornero & Varis, (2010). Measuring levels of individuals' media literacy skills is highly significant to identify users 'weaknesses and provide them with relevant training. To this end, various scales have been developed (Chang et al., 2011, Ashley Maks & Craft, 2013; Literat, 2014). Parental mediation is considered as an important factor (Linder and Werner 2012; Nikken and Jansz 2014). The changes occurring in the media sector, with new apps, games, platforms and genres rapidly emerging, have contributed to the instability of meaning of the concept of media literacy and added to the measurement challenges (Wallis & Buckingham, 2013).

In the context of Thailand, The Ministry of Information and Communication Technology (2016) gave the meaning of media literacy as the skill or ability to use media with a good judgment, without blindly believing the content on read or heard but to access, analyze, use, evaluation,

creation and ask the question of whether it is real or not, who gives one such information, what is the message he intends to communicate, or does he has any hidden agenda. The important role of the media is well-recognized in this information age. social media, in particular, is becoming part of people's lives today, as it breaks time and space boundaries. Amidst the changing of the media landscape, however, media users are more susceptible to risks from harmful and biased content. There is a need to educate people about media and information literacy. The Thai government is aware of the need to equip media consumers with literacy, so that they will be able to benefit from information, instead of falling victim to the media.

1.3. General education

"Education is an important thing leading to the development of knowledge and basic skills to live in social" (The Office of General Education, Valaya Alongkorn Rajabhat University, 2019). General Education is a basic subject that aims to make students into a complete human, with vast knowledge, the ability to understand and perceive the values of themselves and other people, the society, art, culture, and nature; to recognize and care about the changes of everything, to develop themselves continuously, to live their live with a good moral code, to always be ready to help other persons, and to become a quality citizen of Thai society and global society. The learning management of general education involves 30 credits of 10 subjects. The challenge in education of 21st Century of preparing a student readies to life in 21st Century. It is important of adapted stream in social that affected to social living widely, so teacher has to awake and prepare in learning program to ready for student's life in 21st Century which changed from 19th and 20th Century. General Education integrates the content of various subjects together, with the aim to cultivate the morality, ethics, conscious mind of responsibility, both to themselves and to the society, among students, as well as the abilities to think, analyze, synthesize, and apply the information systemically, the curiosity of a life-long learning, the ability to create a relationship and to learn to live responsibly with other people of the society, and the ability use language skills and information technology efficiently. These traits will cultivate students into a complete individual, whether in terms of physical or mental (emotion, thought, intelligence, and spirit), where they may live happily with other people in the society.

Confirmatory Factor Analysis (CFA)

Factor Analysis is a statistical analysis technique that aims to reduce the overall amount of datum or factors involved in a research project. This technique categorizes related variables into factors which, in turn, underlie those variables. This technique allows researchers to understand the structure between variables. One unique benefit of factor analysis is the reduction of measurement error that, in turn, allows the analyzed factors to be further used correctly and accurately. At present, Confirmatory Factor Analysis (CFA) becomes a widely accepted technique and substitutes the Exploratory Factor Analysis, due to several limitations of Exploratory Factor Analysis, namely, since there are many available analysis formats, the analysis results can be inconsistent and the factors are hard to interpret, due to the fact that such factors consist of those inconsistent variables. This is because the consideration of which observed variables consist of which factors, using the exploratory factor analysis technique, is based on statistical-based categorization than contextual-based categorization. Moreover, several prerequisite conditions of the exploratory factor analysis are quite too strict and inconsistent with the reality, for example, all the observed variables are the result of all the common factors, or the deviations of the observed variables are not related. The Confirmatory Factor Analysis can solve almost every problem faced while using the Exploratory Factor Analysis. (Hair et al., 2010; Literat I., 2014; Martens, H., 2009).

2. Methodology

2.1. Population and Sample

The population was 4,692 undergraduate students who registered in Genreral Education course of academic year 2019 of Valaya Alongkorn Rajabhat University in Thailand. The samples were 469 students, selected by multi-stage random sampling. We determined the size of the sample clúster following Hair et al., (2010) presenting at least 10 samples: observed variables in analyze confirmative factors with 20 observed variables.

2.2. Instrument

The literature was reviewed to define media literacy clearly and to generate an item pool. Based on the literature review, the characteristics that a media literate individual needs to possess were identified. After an extensive literature review (Aufderheide, 1993; Austin et al., 2016; Bachmair & Bazalgette, 2007; Baran, 2014; Chang, C., & Liu, E. Z.,2011; Felini, D. 2014; Hobbs & Moore, 2013; Ivanovic, 2014; Kellner & Share, 2007; Koltay, 2011; Literat, 2014; Martens, 2009; RobbGrieco, 2012; Rogow, 2013; Thoman & Jolls, 2005; UNESCO,2013). The research instrument consisted of questions synthesized from the literature review with answers coded on a 5-point Likert scale. Five experts were used to find indices of Item-Objective Congruence (IOC): we selected items with IOC > 0.80 The 50 questions we trialed on 30 students of the same population and demonstrated a reliability coefficient of 0.83. The reliability of the instrument was assessed using Cronbach's the data was then analyzed and means ($\bar{X}$) and standard deviations (S.D.) computed.

2.3. List of component definitions and observed variable

Table 1
Component definitions
and observed variables

Components	Acronym	Observed variables	Acronym
1. Access Ability of students to realize that they need to use information by determining scopes of information contents, accessing media effectively in dimensions of gender, language, time, technology and expense and accessing media correctly, safely and professionally with following indicators.	**A**	1) Specifying scope and selecting methods for searching.	A1
		2) Accessing needed information effectively in dimensions of gender, language. Time, expense and technology.	A2
		3) Accessing information correctly, safely and professionally.	A3
2. Analysis Ability of students to identify sources, understand objectives to a target group, interpret meaning by separating facts and opinions, identify techniques to draw attention, analyze contents of media, hiding influence on beliefs and behaviors reasonably with these indicators	**B**	1) Identify sources - who created the content, identify media factor consisting of brand, objectives and interpretation.	B1
		2) Interpret meaning by separating facts and opinions and techniques to draw attention.	B2
		3) Techniques of media to draw attention.	B3
		4) Analyzing contents hiding influence on beliefs and behaviour reasonably.	B4
3. Use Ability of students to select media suitably with objectives and use, review and publish media critically, correctly and safely, and use media recognizing etiquettes, personal rights, copyrights and considering potential impacts on themselves, others and society with following indicators.	**C**	1) Selecting suitable media with desired purpose.	C1
		2) Selecting media, reviewing and publishing media critically, correctly and safely.	C2
		3) Recognizing etiquette, personal rights, copyrights, domestic and international laws and moral codes.	C3

4. Evaluation	D	1) Judgement of media quality through basic analysis process.	D1
Ability of students to judge quality of media through basic analysis process and to make value judgments on the credibility of media content, media providers, current acceptability and can decide on suitability of media, whether it is ethical and moral.		2) Judgment of media value from credibility of its contents, media provider and modernity.	D2
		3) Judgment of media suitability whether it is legal and ethical.	D3
5. Creation	E	1) Integrating existing knowledge with the new facts effectively.	E1
Ability of students to integrate existing knowledge and the new points effectively and specify objectives of media creation properly, plan, design, develop and create media for varieties of genders, ages and languages and culture, with different techniques for learning or using in daily life. They can present and publish media through different channels appropriately recognizing ethical and moral considerations.		2) Determining objectives for proper media creation.	E2
		3) Planning, designing, developing and creating media for a variety of genders, ages, languages and cultures, with different learning techniques.	E3
		4) Presenting and publishing media through different channels, appropriately considering ethical and moral codes.	E4
6. Reflection	F	1) Reflecting about media with discretion.	F1
Ability of students to reflect media concepts with discretion and reflect thoughts regarding media from existing experience to compare, transmit and share any new matters. They can use information from media to reflect thoughts, solve problems and apply them in their routine life.		2) Reflecting about media from existing experience to compare and share any new matters.	F2
		3) Using information from media to reflect thoughts, solve problems and apply in daily life.	F3

2.4. Data Collection

The data collection along with a QR Code pointing to the online questionniare. The samples were asked to scan the code to fill out the form on the internet and eventually, 469 responses (100%) were recived. The period of data collection was during August to Setember,2019

2.5. Data Analysis

The basic descriptive data in this study were analyzed using descriptive statistics on IBM SPSS 21 for Windows whereas the Second-order Confirmatory Factor Analysis (CFA) was processed via LISREL 10.20. The measurement model was designed by the researcher with predeterminned component quantity, name, and variable composition, the CFA was applied to it to statistically validate the measurement. According to the prerequisite conditions before using the data to test the measuring model's fitness against the empirical data, using the Maximum Likelihood (ML) method, because it is quite hard to conduct the multivariate normal distribution technique, the data will be verified by considering the individual distribution of each variable instead. The skewness should be less than 1 (Hair et al., 2010) and the kurtosis should be less than 7 (Curran, et al., 1996). The result reveals that every observed variable has a normal distribution, as depicted in Table 2.

Table 2
Skewness and Kurtosis of
latent and observed variables

observed variables	Number of item	a	M	SD	Skew	Kurt
Access (A)						
1) Specifying scope and selecting methods for searching. (A1)	3	0.98	4.12	0.72	-0.24	-0.29
2) Accessing needed information effectively in dimensions of gender, language. Time, expense and technology. (A2)	3	0.97	4.09	0.73	-0.25	-0.27
3) Accessing information correctly, safely and professionally. (A3)	3	0.97	4.16	0.71	-0.69	0.56
Analysis (B)						
1) Identify sources - who created the content, identify media factor consisting of brand, objectives and interpretation. (B1)	4	0.96	3.97	0.75	-0.36	0.42
2) Interpret meaning by separating facts and opinions and techniques to draw attention. (B2)	4	0.96	3.99	0.73	-0.36	-0.31
3) Techniques of media to draw attention. (B3)	4	0.96	4.04	0.74	-0.64	0.29
4) Analyzing contents hiding influence on beliefs and behaviour reasonably. (B4)	4	0.95	3.97	0.77	-0.38	0.32
Use (C)						
1) Selecting suitable media with desired purpose. (C1)	3	0.98	4.09	0.78	-0.39	-0.24
2) Selecting media, reviewing and publishing media critically, correctly and safely. (C2)	3	0.96	4.00	0.79	-0.56	0.23
3) Recognizing etiquette, personal rights, copyrights, domestic and international laws and moral codes. (C3)	3	0.98	4.16	0.71	-0.51	0.18
Evaluation (D)						
1) Judgement of media quality through basic analysis process. (D1)	3	0.97	3.96	0.74	-0.48	0.37
2) Judgment of media value from credibility of its contents, media provider and modernity. (D2)	3	0.97	3.99	0.76	-0.30	0.15
3) Judgment of media suitability whether it is legal and ethical. (D3)	3	0.97	4.00	0.73	-0.63	-0.21
Creation (E)						
1) Integrating existing knowledge with the new facts effectively. (E1)	4	0.96	4.09	0.77	-0.51	0.27

2) Determining objectives for proper media creation. (E2)	4	0.97	4.05	0.72	-0.63	0.39
3) Planning, designing, developing and creating media for a variety of genders, ages, languages and cultures, with different learning techniques. (E3)	4	0.96	4.00	0.78	-0.26	-0.31
4) Presenting and publishing media through different channels, appropriately considering ethical and moral codes. (E4)	4	0.96	3.99	0.79	-0.21	-0.02
Reflection (F)						
1) Reflecting about media with discretion. (F1)	3	0.97	4.14	0.77	-0.31	0.24
2) Reflecting about media from existing experience to compare and share any new matters. (F2)	3	0.98	4.03	0.74	-0.41	0.37
3) Using information from media to reflect thoughts, solve problems and apply in daily life. (F3)	3	0.98	4.01	0.72	-0.39	-0.23

Skewness < |1| (Hair et al., 2010)

Kurtosis < |7| (Curran et al., 1996)

3. Results

The second-order confirmatory factor analysis of media literacy of undergraduate students produced the results as demonstrated in Table 3-4 and as summarized in Figure 1.

Chi-Square=137.27, df = 146, P-value=0.42, RMSEA=0.00

Figure 1
Second-order confirmatory factor analysis model
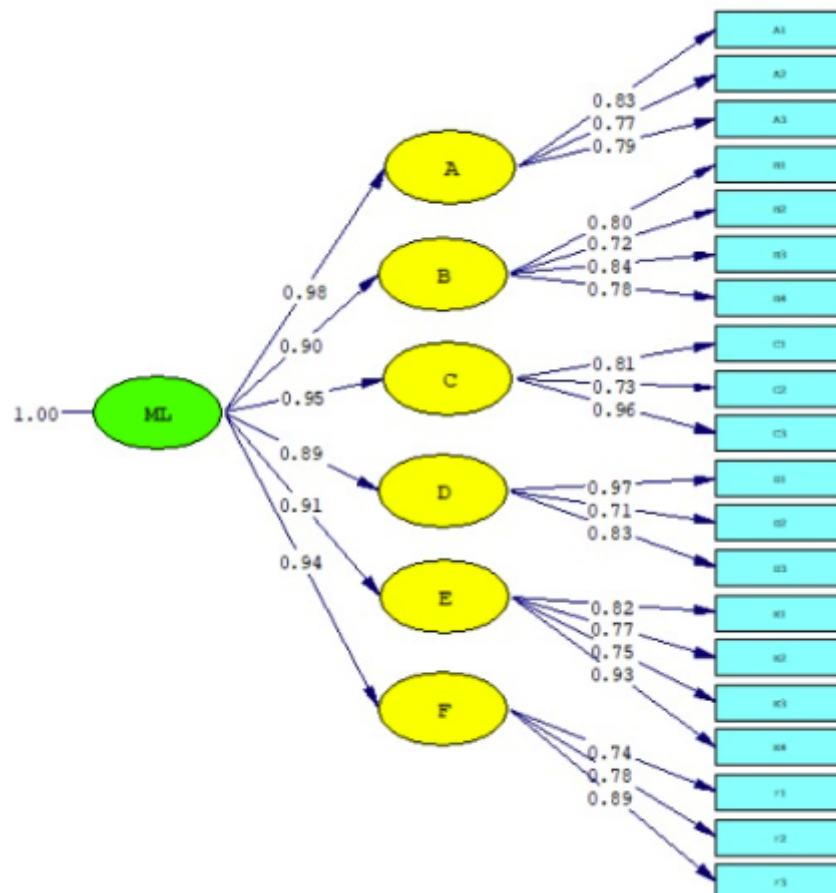of media literacy for undergraduate students

Table 3
Criteria and theory of the values
of Goodness-of-Fit Appraisal

Criteria Index	Criteria	Values	Results	Conclusion	Supporting theory
Chi-square: $x2$	p>0.05	0.42	passed	Good	Rasch, 1980
Relative Chi-square: $x2/df$	≤ 2.00	0.94	passed	Good	Byrne et al., 1989
RMSEA	≤ 0.05	0.00	passed	Good	Hu & Bentler,1999
GFI	≥ 0.95	1.00	passed	Good	Joreskog & Sorbom 1999
AGFI	≥ 0.95	0.98	passed	Good	Hooper et al., 2008
RMR	≤ 0.05	0.01	passed	Good	Hu & Bentler,1999
SRMR	≤ 0.05	0.01	passed	Good	Hu & Bentler,1999
NFI	≥ 0.95	1.00	passed	Good	Schumacker & Lomax, 2010
CFI	≥ 0.95	1.00	passed	Good	Schumacker & Lomax, 2010

Chi-Square=137.27, df = 146, P-value=0.42, c2/df=0.94, RMSEA=0.00, RMR=0.01, GFI=1.00, AGFI=0.98, NFI=1.00, CFI=1.00

Table 4
Correlation coefficient betaween latent variables (under the diagonal),
construct reliability (rC), and average variance extracted (AVE)

Latent Variables	A	B	C	D	E	F
A	1					
B	0.76**	1				
C	0.68**	0.74**	1			
D	0.71**	0.87**	0.79**	1		
E	0.69**	0.84**	0.81**	0.76**	1	
F	0.71**	0.68**	0.73**	0.69**	0.82**	1
rV (AVE)	0.68	0.63	0.67	0.65	0.70	0.64
rC (Construct Reliability)	0.84	0.81	0.79	0.80	0.83	0.85
√AVE	0.82	0.79	0.82	0.81	0.84	0.80

**Sig < .01

Table 5
Factor Loadings, convarinces of the second-order confirmatory factor analysis of
media literacy of undergradute students

Variables	Factor Loadings			
	b	S.E.	t	R2
Access (A)	0.98	0.03	24.63	0.71
1) Specifying scope and selecting methods for searching. (A1)	0.83	0.03	24.63	0.62
2) Accessing needed information effectively in dimensions of gender, language. Time, expense and technology. (A2)	0.77	0.02	26.10**	0.69
3) Accessing information correctly, safely and professionally. (A3)	0.79	0.02	23.67**	0.73
Analysis (B)	0.90	0.03	27.10	0.57
1) Identify sources - who created the content, identify media factor consisting of brand, objectives and interpretation. (B1)	0.80	0.03	27.10	0.61
2) Interpret meaning by separating facts and opinions and techniques to draw attention. (B2)	0.72	0.03	24.78**	0.53
3) Techniques of media to draw attention. (B3)	0.84	0.02	26.64**	0.55
4) Analyzing contents hiding influence on beliefs and behaviour reasonably. (B4)	0.78	0.03	24.51**	0.59
Use (C)	0.95	0.03	31.95	0.79
1) Selecting suitable media with desired purpose. (C1)	0.81	0.03	31.95	0.77
2) Selecting media, reviewing and publishing media critically, correctly and safely. (C2)	0.73	0.03	33.28**	0.73
3) Recognizing etiquette, personal rights, copyrights, domestic and international laws and moral codes. (C3)	0.96	0.04	30.20**	0.74
Evaluation (D)	0.89	0.03	28.20	0.64
1) Judgement of media quality through basic analysis process. (D1)	0.97	0.03	28.20	0.67
2) Judgment of media value from credibility of its contents, media provider and modernity. (D2)	0.71	0.03	29.67**	0.58
3) Judgment of media suitability whether it is legal and ethical. (D3)	0.83	0.02	26.34**	0.60

Creation (E)	0.91	0.03	27.89	0.72
1) Integrating existing knowledge with the new facts effectively. (E1)	0.82	0.03	27.89	0.69
2) Determining objectives for proper media creation. (E2)	0.77	0.03	31.10**	0.63
3) Planning, designing, developing and creating media for a variety of genders, ages, languages and cultures, with different learning techniques. (E3)	0.75	0.03	29.67**	0.67
4) Presenting and publishing media through different channels, appropriately considering ethical and moral codes. (E4)	0.93	0.03	28.12**	0.70
Reflection (F)	0.94	0.03	28.64	0.69
1) Reflecting about media with discretion. (F1)	0.74	0.03	28.64	0.63
2) Reflecting about media from existing experience to compare and share any new matters. (F2)	0.78	0.03	24.58**	0.61
3) Using information from media to reflect thoughts, solve problems and apply in daily life. (F3)	0.89	0.03	27.39**	0.65

$*p < 0.01$

From Table 5, the result from first-order confirmatory factor analysis revealed that all the primary Media Literacy components demostrated positive sub-component factor loading between 0.89 – 0.98 at a statistical significance at level 0.05. Ranked from high to low factor loadings, the component in priority order was the Access (A), Use (C), Reflection (F), Creation (E), Analysis (B) and Evolution (D) respectively with 0.98, 0.95, 0.94, 0.91, 0.90 and 0.89 factor loadings. The measurement of all components (R2) also indicated a positive reliability as the variability of all sub-components in the 6-components ranged between 0.71 – 0.79 which is as exhibited in Table 5 for the second-order confirmatory factor analysis using the Goodness of Fit statistics.

4. Conclusions

The confirmatory factor analysis of the media literacy components demonstrated that the media literacy was consistent with the empirical data. This can be interpreted that the media literacy components should contain 6 components with 20 observed variables. These 6 components were the Access (A), Use (C), Reflection (F), Creation (E), Analysis (B) and Evalution (D) with a range of component reliability value from 0.89 – 0.98. The finding was consistent with Nupairoj (2015) studied the components of media literacy among Generation Y in the context of Thailand, by using the aforementioned evaluative framework created by UNESCO (2013) as the instrument for measuring the result. Her research revealed that, in the context of Thailand, the media literacy should be comprised of 4 components, namely: 1) the ability to access the media, 2) the ability to understand, analyze, interpret, and evaluate the media's content, 3) the ability to give creative expression, and 4) the ability to perform reflective practice. Thus, major findings of this research include new Thai media literacy components (for example, the ability to reflect) that differ from those identified in UNESCO MIL Framework, and the existence of the Ecosystem of Media Literacy, one that posits that the learning schema works in an environment that supports media literacy and where each component operates interdependently and in parallel with one another. Arke & Primack (2009) found that, with a small sample of college students, there is good internal consistency among the five subscales of the measure: recall, purpose, viewpoint, technique, and evaluation. In their measures, closely adapted from the work of Hobbs and Frost, "recall" assesses

basic comprehension of author intention, "viewpoint" domain assesses both whether the participant can identify the sender of the message, and what points-of-view may be left out of the message. The "technique" domain assesses an individual's ability to analyze the production techniques that were used to attract attention. Finally, the "evaluation" domain assesses how an individual evaluates that message in comparison to his/her own perspective. Many studies have used scaled self-report measures of the media literacy competencies of learners to examine what Scharrer (2002) has called the implicit assumptions about the benefits of media literacy education.

In conclusion, following the this paper has progressively adapted and modified in the context of Thai students. we intend to use the discovered factors and indicators, as a guideline for developing instructions and activities in General Education courses to enhance media literacy for undergraduate students.

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