The Study Factor of Online Resources with Learning on the Selection of Secondary School Students with Different Cognitive Learner Style

Chetthapol Thongkred[*1] Prachit Intakanok[**2] Kajohnsak Sanguansat[***3] andNootjaree Bunked[****4]

[1]*ICT Doctoral student Faculty of Education. Surindra Rajabhat University*

[2,3,4]*Faculty of Education. Surindra Rajabhat University*

E-mail : thongkred99@gmail.com

Abstract

This research aimed to study the factor of online resources with learning on the selection of secondary school students with different cognitive learner style. The sample groups of this study were 140 secondary school students; field independent was 75 people and field dependent were 65 people. Learning management plan, e-learning achievement test, the student interview, a survey of the factor of online resources with learning e-learning, data collecting form, cognitive assessment form, student's manual and teacher's manual are the research tools. Statistics used in data analysis were percentage, mean, analysis hypothesis testing with t-test and analysis of variance.

The research results were as follows,

1. The students choose social media because there are animations, sounds, entertainment, knowledge and chatting to exchange information. Therefore, they aren't bored to learn. They always used search engine in every day. It was familiar, memorable, easy access, quick and easy to use. Moreover, many organizations provide (www.) to support their specific targets so, when you need to search, you can use it.

2. The most factors field independent group used were familiarity factor; familiar, knowledge, used in every day, usability factor, can copy file to use in public relations, for teaching and depend on the service factor, technology equipment, searching programs, the tools help for use in shot-time and students in Field Dependent group used in service factor, searching programs, use in short-time, fast to access the information, Usability factor, can copy files to publicize and the sequence factor, the top of sequence were chose the first to use and it wasn't waste the time for search.

3. The standard deviation and the mean of pre-test score field independent and field dependent group, they were different classifier of cognitive learner style and different pre-test score with the significance level of 0.05. The standard deviation, the mean of post-test score in field independent and field dependent group, they were classifier different of cognitive learner style and different post-test score with the significance level of 0.05

Keywords: Learning resources, e-learning resources, Using learning resources, Cognitive style

Introduction

Everyday has changes all the time and people has to live by learning. Learning is life, life is learning. People have to adjust themselves in changing environment. Knowledge resource is data, information, knowledge of science, Support the learners to learn by themselves that make them to learn all the time. Students who have different cognitive style can make methods to learn from the advantage resources, comfortable, fast, easy to access and believable (Amornrat Cheewangkoon 2010) Analysis thinking is a part of linking thinking and attach much weight to decision, relation between students of Field Dependent and Field Independent cognitive learning style. (Nattharee Tunkaew 2012) To study in Canonical Correlation between learning style with Independent learning style, Avoidant learning style, Cooperative learning style, Collaborative learning style, Competitive learning style and Participatory learning style then student can connect knowledge enter to content. (Ausubern 1978) The cognitive styles show the stable of people and the different of management thinking and relate with content, motivation and easy to access (Raksak Lertkhongkhathip 2010) Learners have different mind mapping technique, different problem-solving skills and different thinking style to interpret information to easy understanding. (Sornchai Bhudkaew 2013) The specialist agree with thinking style of designing picture in test group and control group are different. The most students are satisfied with thinking style of designing picture to interpret therefore the different thinking styles are created content analysis, decision to practice,

selection content, using data, fast access to information and different analysis factors of online resource selection. (Kusira Charoensuk. 2013) The factors affecting the use E-learning technology; Learners are interested in chatting, they have many experience and learning,

interaction between student and teacher, use information for advantages, present information by words, pictures and sounds, knowledge, explain content clearly, use easy language, relation with content, suggestions and connection with internal and external website. The ability depends on resource ability, interested with using and website presentation format.

This article discusses different cognitive learner styles with using knowledge online resource. GEFT (The Group Embedded Figure Test by Witkin and Other 1971) Learners can access and study knowledge according to their aptitude and interest. This is due to many factors that students need to rely on learning and use many problems-solving, new methods to get students find more problems-solving, create the suitability for cognitive style of people, thinking outside of box (Witkin 1977) perceptions more than recognize, expression according to the recognition criteria, order, suggestions from others, directions, the feedback is a reflect to learners in many styles. These effects have to environment factors. (Messick 1976 15) Behavior, perception, memorize, direction, problems-solving and attention. These are effect to personality's learners therefore; the searching information resources on internet become the large knowledge resources. Every student can access to study as they interesting, aptitude and requirement, sharing knowledge with other friends, make quickly knowledge, deeper learning, know inside out, learning all the time and support student to have more responsibility and discipline to own learning.

Research Questions

1. What are the online resources with the learning of secondary school students with Field Dependent and Field Independent cognitive learner style?

2. What are the factors of online resources with learning on the selection of secondary school students with Field Dependent and Field Independent cognitive learner style?

3. Did the pre-test and post-test of secondary school students who learning with online resources with Field Dependent and Field Independent cognitive learner style are the difference or not?

4. Did the post-test of secondary school students who learning with online resources with Field Dependent and Field Independent cognitive learner style are the difference or not?

Research Objectives

General Objective

To study factor of online resources with learning on the selection of secondary school students with different cognitive learner style.

Specific Objectives

1. To study the online learning resources of secondary school students with Field Dependent and Field Independent cognitive learner style that students selected to use

2. To study factor of online resources with learning on the selection of secondary school students with Field Dependent and Field Independent cognitive learner style.

3. To compare pre-test and post-test of secondary school students with online learning in Buddhism subject, the principle of Buddhism, Eightfold Path with Field Dependent and Field Independent cognitive learner style.

4. To compare post-test of secondary school students with online learning in Buddhism subject, the principle of Buddhism, Eightfold Path with Field Dependent and Field Independent cognitive learner style.

Research Methodology

Population in this research is 367 secondary school students from Suwanwijit Wittaya School (a charity school of Buddhism temple), Office of the Private Education Commission, Primary Educational Service Area 3, and the first semester of the academic year 2017. This research uses GEFT cognitive style which developed by Witkin and Others (1971). The experimental group was divided into 2 groups; 65 students in Field Dependent cognitive learner style and 75 students in Field Independent cognitive learner style.
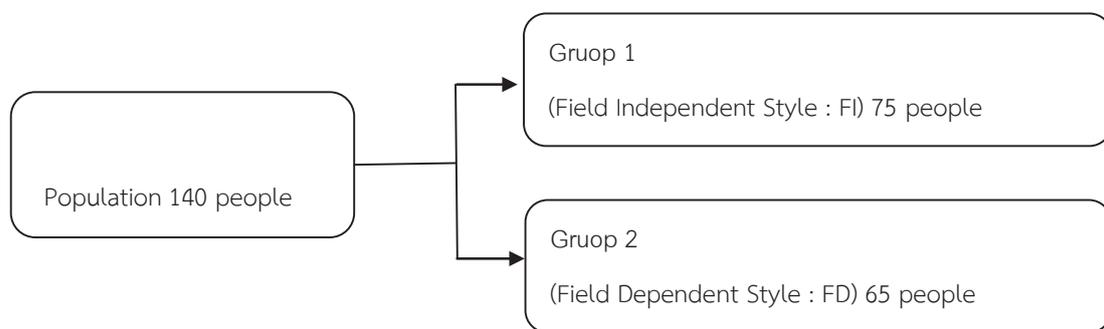

Figure 1 The sample group in the experimental plan.

Research Variables

1. Independent variable is the variables effect to the secondary school students consists of 7 factors.

1) Familiarity factor/knowledge; there is feature of knowledge sources from familiarity and use for daily searching from basic to advance.

2) Difficulties in accessing factor; there is feature of knowledge sources to easy searching, fast to access, can see in the first page, no complicated and easy to searching both of short and full information.

3) Content factor there is feature of knowledge sources with clearly content, correct as needed, specific data, messages, pictures and sounds

4) Sequence factor; there is feature of knowledge

5) Sources with the first priority according in the record of website.

6) Usability factor: there is feature of knowledge sources with the copy information, sharing and easy to publicize.

7) Service factor; there is feature of knowledge sources with the service of searching and stable technology devices, fast and accurate searching. Reliability information factor; there is feature of knowledge sources with identify information, not illegals and not against morally rules, tell the purpose of presentation, name, author's address.

2. Dependent variable is the knowledge sources with secondary school students selected; there are library and database online, educational tour online, E-book, radio and TV shows online, multimedia, Wikipedia, Search Engine, Social Media, www and E-learning

Research Tools

1. Learning management plan is specific learning management plan that the instructor created and designed the knowledge sources that students choose for searching information.

2. E-learning is the lessons are created for online teaching. There are activities and Assessment.

3. The achievement is a measurement of student before and after to learning.

4. Student interview is the additional information interview after students used the knowledge sources.

5. The survey form of the online source factors is the factors that students use all the knowledge sources online.

6. Data collecting form of the online sources is the data that students use the online knowledge sources.

7. Field Dependent and Field Independent cognitive learner style is the cognitive style for divide the students into 2 groups.

8. Student's manual is the manual for using Instructional online system for student.

9. Teacher's manual is the manual for using Instructional online system for teacher

Data analysis

The statistics used in the data analysis were frequency distribution, percentage, average and standard deviation. The table 1 shows the secondary school students have Field Independent cognitive learner style and the top three of knowledge online sources that students choose are Social Media ($\bar{x}$ = 4.79, S.D. = 0.47), Search Engine ($\bar{x}$ = 4.65, S.D. = 0.76), Wikipedia and www. ($\bar{x}$ = 4.08, 4.08, S.D. = 0.96, 0.83) And the secondary school students have Field dependent cognitive learner style and the top three of

knowledge online sources that students choose are Social Media ($\bar{x}$ = 4.72, S.D. = 0.57) Search Engine ($\bar{x}$ = 4.58, S.D. = 0.55) and www. ($\bar{x}$ = 4.46, S.D. = 0.58) The result of the different using knowledge online resources of the secondary school students with Field Independent and Field dependent cognitive learner style.

Table 1 The result of online resources with the selection and use of secondary school students with Field Dependent and Field Independent cognitive learner style.

No.	Knowledge online resources	FI			FD		
		($\bar{x}$)	(S.D.)	result	($\bar{x}$)	(S.D.)	result
1	Library and database online	4.05	0.89	high	4.26	0.75	highest
2	Educational tour online sources	3.71	1.05	high	4.09	0.72	high
3	E-book	3.64	1.12	high	4.17	0.67	high
4	Radio and TV show online	3.84	1.09	high	4.32	0.68	highest
5	Multimedia	4.07	0.96	high	4.20	0.75	high
6	Wikipedia	4.08	0.96	high	4.32	0.64	highest
7	Search Engine	4.65	0.76	highest	4.58	0.55	highest
8	Social Media	4.79	0.47	highest	4.72	0.57	highest
9	www	4.08	0.83	high	4.46	0.58	highest
10	E-learning	3.67	1.05	high	4.12	0.65	high
	Total	4.05	0.64	high	4.32	0.46	highest

Table 2 the result of the study factors online resources with learning on the selection of secondary school students with Field Dependent and Field Independent cognitive learner style.

	7 Factors of online source	FI			FD		
		$\bar{x}$	S.D.	result	$\bar{x}$	S.D.	result
1	Familiarity/ knowledge	4.15	0.76	high	4.53	0.43	highest
2	Difficulties in accessing	3.89	0.69	high	4.49	0.29	high
3	Content	4.00	0.68	high	4.53	0.20	highest
4	Sequence of online source	3.83	0.79	high	4.56	0.30	highest
5	Usability	4.11	0.82	high	4.60	0.35	highest
6	Service	4.03	0.90	high	4.62	0.25	highest
7	Reliability of knowledge source	3.99	0.79	high	4.49	0.31	high
	Total	4.00	0.67	high	4.55	0.21	highest

From the table 2 shows the secondary school students have Field Independent cognitive learner style and the top three of average factors that students choose are Familiarity/ knowledge Factor ($\bar{x}$ = 4.15, S.D= 0.76), Usability Factor ($\bar{x}$ = 4.11, S.D = 0.82) and Service Factor ($\bar{x}$ = 4.03, S.D = 0.90). And the secondary school students have Field dependent cognitive learner style and the

top three of average factors that students choose are Service Factor ($\overline{x}$ = 4.62, S.D = 0.25), Usability Factor ($\overline{x}$ = 4.60, S.D = 0.35) and Sequence of online source Factor ($\overline{x}$ = 4.56, S.D = 0.30)

Table 3 The analysis of average achievement score, standard deviation and the comparison of mean pre- test scores between Field Independent and Field dependent cognitive learner style.

Experiment Group FI and FD	N	$\overline{x}$	S.D.	t	sig
FI	75	14.11	.831	15.868*	.00
FD	65	11.11	1.312		

From the table 3 shows the standard deviation and the mean pre-test scores between Field Independent and Field dependent cognitive learner style are different classifier and have different pre-test score with the significance level of .05.

Table 4 the analysis of average achievement score, standard deviation and the comparison of mean post- test scores between Field Independent and Field dependent cognitive learner style.

Experiment Group FI and FD	N	$\overline{x}$	S.D.	t	sig
FI	75	24.48	2.256	14.786*	.00
FD	65	18.08	2.707		

From the table 4 shows the standard deviation and the mean post- test scores between Field Independent and Field dependent cognitive learner style are different classifier and have different post-test score with the significance level of 0.05.

Research Result

1. The students used Social Media because there were animations, sounds, entertainment, knowledge and chatting to exchange information therefore, they weren't bored to learn. They always used Search Engine in every day. It was familiar, memorable, easy to access, quickly and easy to use. Moreover many organizations made www. to support their specific targets so it can search and used the information when they want.

2. The factors that students in Field Independent group used the most were Familiarity factor; familiar, knowledge, used in every day, Usability factor, can copy file to use in public relations, for teaching and depend on the service factor, technology equipment, searching programs, the tools help for use in short-time and students in Field Dependent group used in service factor, searching programs, use in short-time, fast to access the information, Usability factor, can copy files to publicize and the sequence factor, the top of sequence were chose the first to use and it wasn't waste the time for search.

3. The standard deviation and the mean of pre-test score in Field Independent and Field Dependent group, they were different classifier of cognitive learner style and different pre-test score with the significance level of 0.05. And the standard deviation and the mean of post-test score in Field Independent and Field Dependent group, they were classifier different of cognitive learner style and different post-test score with the significance level of 0.05.

Research Conclusion

The most of student use the online knowledge sources is Google's search engine and daily website is Facebook for chatting and send information. It shows that using Social Media with Facebook is effect for select to use the online knowledge sources increased. The most of student has friend members on Facebook because there are management learning on Facebook and addition, Click the Like, comment, share the feeling, entertainment, finding new friends or new group, unlimited to access. (Charles Crawford 2014) And the most of the secondary school student use the online knowledge source is Social Media as a result of select the online knowledge increased. The computers can connect to internet network because of Technology Advances. Technology Advances help to access in everywhere and every time (Surasuk Pahey. 2011), (Kanda Runnapongsa Saikaew. 2011) easy to access, easy to use, fast, sharing such as comment, social value, send files, entertainment, grouping or search information with Social media, have sounds, animations and it's not complicated.

The most factors that students in Field Independent group use, there are familiar, knowledge, used in every day, Usability factor, can copy file to use in public relations, for teaching and depend on the service factor, technology Advances, update information, sharing thinking, has searching programs, the tools help for use in shot-time. And the most factor that students in Field Dependent group used, there are service factor. They have searching programs to help, use in short-time, fast to access the information, Usability factor, can copy files to publicize and the sequence factors, the top of sequence are choose the first to use and it doesn't waste the time for search. (Charles Crawford 2014), (Rogers and Shoemaker 1971)

The variance test of pre-test and post test score in Field Independent and Field Dependent group with different classifier are different with the significance level of 0.05. It shows that the instructional management of online knowledge sources process motivate the learners are interested and it is a teaching technique that make students have the achievement increased (Kobwit Piriyawat. 2011), have learning skills, conclusion, discussing, comment, showing viewpoint, additional opinions, create own knowledge (Social Media and Education of Thailand 2556), unlimited in everywhere and every time and endless to learn (Bureau of Technology for Teaching and Learning 2009)

The factors of online knowledge sources with learning on the selection of secondary school students with Field Independent cognitive learner style are high level and Field Dependent cognitive learner style are highest level. These show that the personal cognitive style has influence the perception, attention, remember, problem solving, thinking process and adaptation in various situations. These observe from the people who manage the perception and acting, when the people gets the incentive from environment (Kogan and Wallach 1966) using the perception process, data collection, organization and incentive analysis lead to learning about the motivations. (Fredrick and Klausmier 1970)

Suggestions

1. Students select the most online knowledge sources, there are Search Engine, Social Media and www because the technological advances has information, share, comment and unlimited to access more than the teacher created. The teacher should survey the selection of knowledge sources before use them to create and suitably with the needs of learners. And the

learners select them from familiar, knowledge, used in every day, remember, accustomed to use and use for learning.

2. The students with Field Independent cognitive learner style use familiar/knowledge, seeking knowledge, increase potential and self discovery more than wait for teacher to suggest. The students with Field Dependent cognitive learner style selected and searching information follow teacher's suggestion, directly content, only needs. Teacher should clearly create knowledge sources for Field Independent cognitive learner style and Field Dependent cognitive learner style and more insight information.

Reference

Amornrat Cheewangkoon. **A development of 4 MAT methods for web-based instruction using learning objects upon learning achievement and logical thinking of secondary school students with different cognitive styles.** Thesis Doctor of Philosophy, Technical Education Technology, King Mongkut's University of Technology North Bangkok, 2013.

Asuburn, L., J. and F.B. Ausburn. Cognitive Styles : Some Information and Implication for Instructional Design. **Educational Communications and Technology Journal.** 26, 4 (May 1978): 337-354.

Bureau of Technology for Teaching and Learning. **The New step of Thailand teachers with Social Media.** (online) 2009 (Cited September 18, 2017). Available from http://thaismedu.com/

Charles Crawford. **23 Reasons Why People Spend More Time on Social Media.** (online) 2014 (Cited December 9, 2017) Available from https://www.socialmediatoday.com/content/23-reasons-why-people-spend-more-time-social-media.

Everett M.Rogers and F.Floyd Shoemaker, **Communication of Innovation.** (1971): 163-209.

Fredrick, Wayme C., and Herbert J. Klausmeier. **Cognitive Styles: A Description.** Educational Leadership (23 April 1970): 669-672.

Kanda Runnapongsa Saikaew. **Social Media.** (online) 2011 (Cited September 18, 2017). Available from http://www.computer.kku.ac.th/?p=1530.

Kobwit Piriyawat. **Academic performance.** (online) 2011 (Cited September 18,2017).Available from http://teacherkobwit2010.wordpress.com.

Kogan, N., and M.A. Wallach. **Modes of Thinking in Young Children.** New York: Holt Rinehart and Winston, 1966.

Kusira Charoensuk. **Factor Affecting the Use of e-learning Technology by Pre-degree Student at Ramkhamhaeng University.** Thesis Master of Arts Faculty of Technology Communication Ramkhamhaeng University, 2013.

Messick, S. **Individuality in learning.** California : Jassey-boss, 1976.

Raksak Lertkhongkhathip. **Interaction analysis of concept mapping techniques and cognitive styles in problem-based learning on web upon problem-solving skills of anthropology undergraduate students.** Thesis Bachelor of Education, Faculty of Educational Communication and Technology, Chulalongkorn University, 2010.

Sornchai Bhudkaew. **Development of thought pattern in designing for visual communication.** Thesis Doctor of Philosophy, Technical Education Technology, King Mongkut's University of Technology North Bangkok, 2013.

Surasuk Pahey. **Returning Classroom : A New Dimension Classroom in 21st Century.** (online) 2013 (Cited September 15, 2017). Available from http://phd.mbuisc.ac.th/academic/flippedped classroom.pdf.

Witkin, H.A., Moore, C.A., Goodenough, D.r., and Cox, P. W. Field-dependent and field independent cognitive styles and their. educational implications. **Reviews of Educational Research.** 47(1977): 1-64.