Promoting Reflective Thinking Skills by using Web 2.0 Application

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Abstract

The study aims to investigate are using Web 2.0 applications promoting reflective thinking skills for higher education student in faculty for education. Although the literature reveals that technology integration is a trend in higher education and researchers and educators have increasingly shared their ideas and examples of implementations of Web 2.0 applications in educational domains, few studies have focused on what happened in the mind when we use Web 2.0 applications as effective teaching and learning tools. This study focused on the impact of the use of Web 2.0 (Google Application) (sites applications, drive, Picasa)) through the production of (web folio) on the internet and studies the relationship between creating web portfolio and reflective thinking skills. Results this the students have improved their skills in reflective thinking

Keywords: reflective thinking – web 2.0 Application –Google Application - web portfolio

INTRODUCTION

Promoting Reflective Thinking Skills is an important topic for online learning because of the current value placed on social learning in general and because of continuing questions about the capacity of web 2.0 Application to prompt Reflective Thinking. The literature on web 2.0 Application highlights many strategies to help online students organize their thinking online by creating web portfolio Through

the use of (Google Application). Much of the writing on the using web2.0 Application to promote reflective thinking skills.

Few studies explored the role Web 2.0 Application play in the promote thinking Generally. Additionally, little is known about Reflective thinking skills by using Web 2.0 technologies. This paper describes practitioner experiences of using Web 2.0 Application to promote reflective thinking skills among higher education students and discusses students' in using these tools to create web folio.

Literature Review

Web2.0 Application

The term 'Web 2.0' was coined during a team discuss ion session in 2004 between O'Reilly and Media Live International (O'Reilly, 2005). In this conference, they agreed that "far from having 'crashed', the web was more i important than ever, with exciting new applications and sites popping up with surprising regularity" (O'Reilly, 2005). Web 2.0, the second generation of the Web, refers to a collection of web-based technologies, including blogs, wikis, audio-podcasting, video-podcasting, RSS feeds, social bookmarking and tagging, social networking, multimedia sharing, and so on (Anderson, P., 2007)

The concept of the Web 2.0 and its accompanying applications and services are continually being updated and changing how people communicate with each other. In comparing Web 1.0 to Web 2.0, the ways people interact with the Web have been different. For instance, in the Web 1.0 phase, a website is delivered with static text and images. Students log into the Web to search for information and use it for their school work and/or personal uses. In the Web 2.0 phase, the new Web serves as a platform and encourages users to be more collaborative, content sharing, and interactive on the Web. (Anderson, 2007; Davis, 2009; Gibbons, 2007). Students not only search for information.

Web 2.0 Application are interactive and allow users to have preferences for own instruction. The principles of the concepts underlying Web 2.0 are summarized as following:

1. In the Web 2.0 world, the Web serves as a "platform" (O'Reilly, 2005, para. 7) or base to support dynamic services delivery (Gibbons, 2007)
2. In the Web 2.0 era, the features of the Web have been transformed from "read

When students participate in online courses the communication that is needed to create and maintain social interaction usually requires technological mediation (Kearns, L., & Frey, B., 2010).
Web 2.0 technologies can effect that mediation. The term Web 2.0 was first used in 2004 and referred to the second generation of the Internet (Schrum, L., & Levin, B., 2009).
The main characteristics of Web 2.0 technologies, as (Schrum, L., & Levin, B., 2009)explain: are that they allow users to add and change content easily, collaborate and communicate instantaneously in order to share, develop and distribute information. Web 2.0 technologies can play an important role in the development of a learning community among students in online courses ((Kearns, L., & Frey, B., 2010); (Palloff, R., & Pratt, K., 2009); (Gunawardena, C., Hermans, M., Sanchez, D., Richmond, C., Bohley, M., & Tuttle, R., 2009). According to (Palloff, R., & Pratt, K., 2009), Web 2.0 technologies have the ability to enhance the development of learning communities and reduce the isolation and distance felt by students in online courses.
(Kearns, L., & Frey, B., 2010) recommend that faculty interested in developing communities among their

online students need to learn about and experiment with a variety of Web 2.0 technologies in order to make students aware of their potential for back-channel communication. Web 2.0 tools range from those that allow for personal expression to those that support community building (Palloff, R., & Pratt, K., 2009). Some of the common forms of Web 2.0 technologies currently being integrated into online courses include Skype, Twitter, Google Docs, blogs, and wikis.

Reflective Thinking

According to Dewey, reflective thinking skill is to think actively, constantly and carefully of any subject. Dewey determined reflective thinking as to think effectively, consistently and carefully of the information, any belief or knowledge support the results aimed by them. In addition, (Dewey, 1933)presented the meaning of reflective thinking in four dimensions:

1. There is a sequence based on the relations between opinions on reflective thinking.

2. Reflective thinking aims to bring positive of the feelings.

3. Reflective thinking bases the belief to some of the basics.

4. Reflective thinking requires to do a conscious research related nature, conditions and basics of a belief (Dogan Dolapcıoglu, 2007)., (Kozan, 2007)).

In terms of dimensions expressed by Dewey, it has observed that individuals in social networks establish a relationship between his own opinions and different opinions, base these opinions to some foundations of relief and reflect their feelings again on the same platform. Dewey stated that the most important requirement of the society is to reflect what they have learned in school about life. A reflective practitioner is defined as an individual who examine assumptions and applications as well as active and stable. The attitudes owned from reflective practitioners can be summarized as open-mindedness, sincerity and responsibility (Kozan, 2007)

Reflective thinking gains a new dimension with today's technology and the relational aspect of the ideas emerge on the virtual environment. Reflective thinking develops faster and effectively in indivuals with the use of social network platforms efficiently. In addition, it is thought that technology could be used as a powerful tool to support the reflective thinking. Reflective practices help to evaluate learning processes of learners with allowing them to be agents of their own learning's. In this respect, one of the supports for the student during the process of problem solving is to provide activities recognizing opportunity for reflective thinking and to create a stimulating and encouraging environment about this subject.

According to Dewey, problem is everything that confuse the human mind, challenge to human, obscure the belief and doesn't met before. According to Bingham, problem is obstacle that collected in order to achieve the desired goal of a person and against the existing forces. Morgan defines the problem as a conflict that is faced with frustration in achieving a goal of individual (Kozan, 2007).A lot of research takes into consideration almost the same procedure after defining the problem. The stages of the procedure are to understand the problem with examining, perform solution plan, application of this plan and evaluation of the obtained results. It is expressed in these researches that computer software's can be used effectively to solve problem and create an interactive environment. Based on their study, (Harskamp, E. G. & Suhre, C. J. M., 2007)mentioned that thinking tips can be effective on problem solving processes of students especially in computer based education. In their research, they provided

some activities as a support to reflective thinking in order to reveal the differences between problem solving successes. They used a tool named thinking tips for supporting the reflective thinking. According to the results of this research, the experimental group is more successful than control group (Kızılkaya, 2009).

Web portfolio

Portfolios and documentation are not really new to technology education. Graphic communication/communication technology teachers have historically required portfolios to display photographs and printing samples, and more recently computer graphics, storyboards for multimedia, and so forth. Students in materials and processing and manufacturing courses have routinely documented their work with such items. Moreover, technology teachers have often required students to document their procedures and final products for assessment purposes (John DiMarco, 2006).

Web portfolios are so important that state university systems and school districts across the world are researching, developing, and teaching Web portfolio courses. Web portfolios have become viable assessment tools in elementary and higher education administration (Kilbane, C., & Milman, N., 2003) Academia has been investigating and massaging Web portfolios for the past decade or so. Limited research along with a number of successful, semi successful and unsuccessful programs and initiatives have been part of the Web portfolios history. To define the Web portfolio, we must first define the e-portfolio, also known as the electronic portfolio. The electronic portfolio is a collection of artifacts, project samples, cases, and focused content presenting the messages and professional and public appearance of an individual or a company through electronic media (Web, DVD, CD-ROM). The e-portfolio provides evidence of skills, experience, and learning. I define the Web portfolio as: an electronic portfolio that is an Internet delivered, interactive, mass communication used to persuade users. The Web is the container for displaying work of all types. Much like the artist's vinyl portfolio book is used to display paintings and drawings, the Web portfolio shows off work in any discipline.

The Portfolios and documentation are not really new to technology education. Graphic communication/communication technology teachers have historically required portfolios to display photographs and printing samples, and more recently computer graphics, storyboards for multimedia, and so forth. Students in materials and processing and manufacturing courses have routinely documented their work with such items. Moreover, technology teachers have often required students to document their procedures and final products for assessment purposes (John DiMarco, 2006)

Carries A Web portfolio is not a "home page"! Home pages that are often required of students in public schools are usually very simple Web pages with links to other "cool" Web pages, illustrated with a variety of "free" graphics copied from the far corners of the Web. Despite the zillions of home pages that have been created in classrooms across America and throughout the world, this exercise is relatively limited in the learning opportunity it provides. There are three fatal flaws to this home page strategy. First, almost no one other than the home page developer is likely to find the linked information to be the least bit interesting or useful. Second, few graphics found on the Web are copyright free, which means the act of copying them to a home page is a violation of copyright law. Finally, there is very little to be learned from creating a list of Web-links and copying/pasting graphics.

Purpose of the Research

Given the apparent ability of Web 2.0 Application to promote reflective thinking skills for higher education students Through the use of (Google Application) to create web portfolio, we raised the

following question: What are higher education students on using Web 2.0 Application to promote reflective thinking skills ?

Methodology

Action Research

I chose action research as my research methodology. According to Parsons and Brown (2002), to be an effective educator one must be an "active participant" in the classroom, observing, analyzing, and interpreting information about student learning and then using this information for planning and decision making (p. 22). Carr and Kemmis (1986) define action research as "simply a form of self-reflective inquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices, and the situations in which the practices are carried out" (p. 162). The basic elements of an action research model are cycles of planning, acting and observing, and reflecting (Lewin, 1948). In an action research project, planning, data collection, data analysis, and the production of results are continuous throughout its cyclical process. After the planning phase, data is collected during the acting and observing phase, and that data is analyzed during the reflecting phase to inform the next planning phase of the next cycle of action research (Lewin, 1948).

In the current study, the planning phase included identifying suitable Web 2.0 Application that were freely available. A review of the literature on creating web portfolio online.

During each cycle's acting and observing phase, the action was implemented, and data was collected. Promote reflective thinking skills were informally monitored through students' interactions with each other, the content and the instructor. Reflecting is the main focus of the third phase of each action research cycle. During this phase, results are evaluated and outcomes are reflected upon. The data were analyzed for patterns and insights.

Reconnect-action-research-induction

Australian government department of social services 2015

Web 2.0 Technologies in Action

The course described in this study was in (lab in college + online (facebook group)) course of 30 students in an Educational Technologies professional Diploma at a faculty of education in Tanta university. This course focused on technology and pedagogy. The course content was organized into ten modules. A variety of Web 2.0 tools (Google sites, Google Docs, Google drive, facebook) was used throughout the course modules to promote reflective thinking skills. In the first module, students were tasked to create a Google account, a Gmail account, and a facebook account and to

send the instructor a message using these tools. The purpose was to help students become familiar with these tools before they used them during the semester.

Model of using web portfolioto promote Reflective Thinking Skills

Stages of application the model

- Define

At this stage it is determined the audience and the content, which will be applied to the model, as well as educational goals will be achieved by using the web portfolio

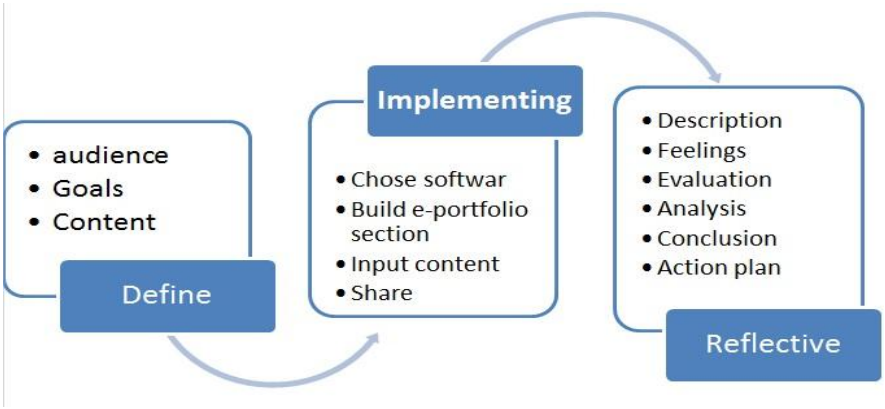
- Implementation

In this stage we chose the software for building the web portfolio and we input the content in multimedia cases (image – presentation – videos - text – excel – tables – links – audio) , finely we share the web portfolio in social network (facebook)

- Reflective

This model in reflective stage based on Gibbs Reflective Cycle because:

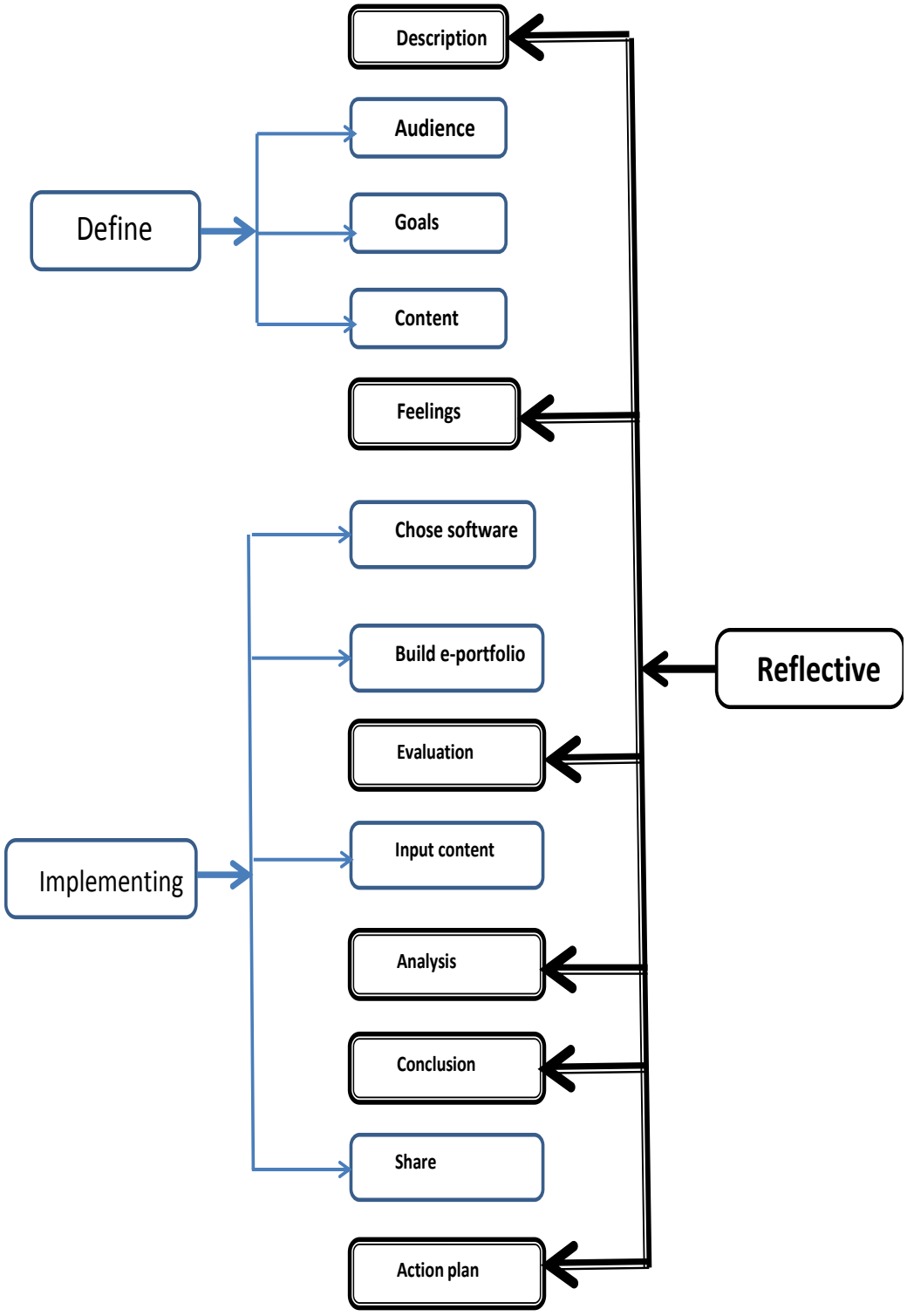
- The Gibbs cycle contain a major elements for reflective skills(Description, Feeling, Evaluation, Analysis, Conclusion, Action plan)
- Make reflective thinking process of student clearly and notify for teacher and administrator
- Making thinking in what we learn very important evidence for development learning environment



Model of using web portfolio to promote Reflective Thinking Skills

(Turkey, 2014)

Relationship between creating web portfolio and reflective thinking skills diagram :



Relationship between creating web portfolio and reflective thinking skills

(Turkey, 2014)

Promoting Reflective Thinking Skills by creating web portfolio

Procedure for Promoting Reflective Thinking Skills by creating web folio

	Week	Procedure
1	**Week One**	**Description** • Give a description beginnings web portfolio • Give a description of the rationale for moving achievement traditional paper file to the web portfolio • A description of the role of the human element in the application and development of web portfolio • Show the role of both the planning and development of web portfolio • Show how new technological web portfolio attachment • Clarify the concept of the calendar in the web portfolio
2	**Week Two**	**Feeling** • Over the complacency or lack thereof on the use of technology in web portfolio • Recognize the importance of the transition from traditional paper file feat to web portfolio • The importance of the previous educational experiences of learners web portfolio • How important is the application of the educational process accomplishment web portfolio • What do you think on the effectiveness of educational web portfolio computer file • Students' understanding of the importance of web portfolio in the development of mental processes has • The appropriateness of the web portfolio for your specialty in terms of activities and the way calendar file
3	**Week Three**	**Evaluation** • Evaluation of the role of both teacher and learner in the achievement of both traditional paper file and web portfolio • Evaluate the role of web portfolio for the development of methods of displaying content • The ability of potential human and material now for the implementation of web portfolio • Teacher of the importance of using the means of modern technology within the web portfolio • The effectiveness of the design and construction of web portfolio up process Evaluation web portfolio Tools
4	**Week Four**	**Analysis** • Analysis of the elements of both web portfolio and the portfolio traditional paper • Analysis of the impact of strategies web portfolio in the educational process • The importance of integrating the roles of the elements of the educational process accomplishment web portfolio • web portfolio role in increasing the effectiveness of distance learning • Multimedia role web portfolio Clarify the extent of the student's ability to use Multimedia achievement web portfolio • The role of both teacher and learner when using web portfolio as a

		tool for Evaluation • The role of good preparation and application for web portfolio to assist in its development
5	**Week Five**	**Conclusion** • Write a brief about the difference between evaluation tools achievement of both traditional paper and web portfolio • A brief overview of the relevance of web portfolio modern technological applications • A summary of the elements of the theoretical side of the web portfolio • Summarized the extent of the importance of considering individual differences of learners web portfolio • A brief presentation of the concept of Multimedia within the web portfolio • To summarize stages Evaluation web portfolio
6	**Week Six**	**Action Plan** • Develop a future vision for how to implement the web portfolio • Giving a vision of how to move from achievement traditional paper file to the web portfolio • Visualize a future for the suggested activities web portfolio • Propose new ways to evaluate web portfolio • Visualize competencies. Please be enjoyed by the teacher web portfolio • Student's ability to recruit in the future knowledge and technical capacity • The teacher's role in the development of perceptions Project to implement the web portfolio • Propose new standards for evaluating web portfolio

Results

The Questionnaire for Reflective Thinking Guidance on completing this questionnaire

A - Definitely agree **B -** Agree only with reservation **C -** Only to be used if a definite answer is not possible

D - Disagree with reservation **E -** Definitely disagree

	Questionnaire item	Student responses Analytic (% percent) 22 student				
		A	**B**	**C**	**D**	**E**
1	When I am working on some activities, I can do them without thinking about what I am doing	60%	40%	0%	0%	0%
2	This course requires us to understand concepts taught by the lecturer	60%	30%	10%	0%	0%
3	I sometimes question the way others do something and try to think of a better way	70%	20%	10%	0%	0%
4	As a result of this course I have changed the way I look at myself	80%	20%	0%	0%	0%
5	In this course we do things so many times that I started to do them without thinking about it	0%	0%	10%	10%	80%
6	To pass this course you need to understand the content	100%	0%	0%	0%	0%
7	I like to think over what I have been doing and consider alternative ways of doing it	100%	0%	0%	0%	0%
8	This course has challenged some of my firmly held ideas	90%	10%	0%	0%	0%
9	As long as I can remember handout material for examinations, I do not have to think too much	0%	10%	10%	10%	70%
10	I need to understand the material taught by the lecturer in order to perform practical tasks	90%	10%	0%	0%	0%
11	I often reflect on my actions to see whether I could have improved on what I did	100%	0%	0%	0%	0%
12	As a result of this course I have changed my normal way of doing things	90%	10%	0%	0%	0%
13	If I follow what the lecturer says, I do not have to think too much on this course	0%	0%	10%	20%	70%
14	In this course you have to continually think about the material you are being taught	80%	20%	0%	0%	0%
15	I often re-appraise my experience so I can learn from it and improve my next performance	90%	10%	0%	0%	0%
16	During this course I discovered faults in what I had previously believed to be right	80%	10%	10%	0%	0%

In our study, students learned to use (web 2.0) apps, (Google apps sites + drive) a tool to create web portfolio . Although (web 2.0) apps its accompanying applications and services are continually being updated and changing how people communicate with each other, our results suggest that Google apps holds potential for agood tools to promote reflective thinking . Specifically, we found Google apps altered the ways students communicated during out-of-class activity. Students were less dependent on Google sites and Google drive for creating web portfolio after Google apps was introduced. The majority of students rated their experience with Google apps by creating web portfolio positively, and half of the students were willing to use web portfolio in future academic activities.

Does the Use of (web 2.0) apps promote reflective thinking skills Students'?

There was no significant effect of using (web 2.0) apps on reflective thinking Students', as measured by students' assignment grades. Several factors may have contributed to this result. students' answers in reflective thinking scale :

- **reflection item**
  1. "**I sometimes question the way others do something and try to think of a better way** " 70% of student answers (Definitely agree) about and 20% of student answers (Agree only with reservation) , and 10% of student (Only to be used if a definite answer is not possible)
  2. "**I like to think over what I have been doing and consider alternative ways of doing it**"100% of student answers (Definitely agree)
  3. "**I often reflect on my actions to see whether I could have improved on what I did"** 100% of student answers (Definitely agree)
  4. **"I often re-appraise my experience so I can learn from it and improve my next performance"** 90% of student answers (Definitely agree) about and 10% of student answers (Agree only with reservation)
- **Critical Reflection item**
  1. **"As a result of this course I have changed the way I look at myself"** 80% of student answers (Definitely agree) about and 20% of student answers (Agree only with reservation)
  2. **"This course has challenged some of my firmly held ideas**" 90% of student answers (Definitely agree) about and 10% of student answers (Agree only with reservation)
  3. **"As a result of this course I have changed my normal way of doing things**" 90% of student answers (Definitely agree) about and 10% of student answers (Agree only with reservation)
  4. **"During this course I discovered faults in what I had previously believed to be right"** 80% of student answers (Definitely agree) about and 10% of student answers (Agree only with reservation) , and 10% of student (Only to be used if a definite answer is not possible)

We can see from this answers:

- Student trying to use a better new ways to thinking about what they're doing
- Reflective skills make student more active and more thinking in there learning
- Learning with reflective skills becoming more effect and more experience lifelong
- we assessed learning in student web portfolio, which may have masked learning at the traditional .
- The Questionnaire for Reflective Thinking scale are necessary to determine whether learning is influenced by using web 2.0 apps .
- However, Google apps did promote students' reflective thinking skills , such as changing the ways that students thinking in learning .
- Web2.0 can be a useful tool that allows sharing and editing in a more simple and flexible way as compared to traditional communication methods

Challenges Encountered While Using web 2.0 to creating web portfolio

To achieve better educational outcomes, it is important for educators to acknowledge both the
Benefits and limitations of using web2.0 to creating web portfolio as a teaching tool. In the questionnaire, student also reported problems using web2.0. Challenges using web 2.0 to creating web portfolio may additionally result from other factors, including:

(1) students may not fully understand the features or operations in web2.0 apps
(2) students might be deterred from using web 2.0 to creating web portfolio they encountered
(3) Web2.0 encountered creating web portfolio may not be the consequence of the tool itself, but may be a consequence of the reflective thinking skills of the users.
(4) To prevent these problems from precluding successful use of web2.0 to creating web portfolio, instructors can provide detailed in-class demonstrations with specific examples, as we did in the present study.

Demonstration in a computer lab would be especially effective because it would allow students to directly interact with the software.

Conclusion

Web 2.0 technologies present novel circumstances in the area of educational research in terms of the features and affordances they present to students, teaching staff, ethics committees and others. With Web 2.0 tools, one cannot assume that prior experience will necessarily assist or equip researchers with the human research ethics implications. It is important to plan research with renewed care so that it adequately reflective thinking skills (Description, Feeling, Evaluation, Analysis, Conclusion, Action plan) . Accounts generated through reflection on actual case studies illustrate some of the ways in which research into learning and teaching with Web 2.0 technologies.

Since new Web 2.0 features and affordances are emerging constantly, teacher-researchers may become increasingly innovative in their research designs and more interaction and motivation.
In this context, reflective thinking skills when we use web2.0 apps offer a framework for reflection, planning and action—especially where there is a requirement that teacher in learning environment. This requirement could be and often is regarded as an unavoidable, administrative hurdle. However, the teacher when he want to using web2.0 application process offers not just anew activity but also make a learning outcomes able to development both teacher and student performance all lifelong time.
Reflection thinking on learning aims and methods which may to extend into new areas, given the novelty of the technologies under investigation.
In summary, strengthening the reflective thinking skills into learning and teaching with Web 2.0 offers the potential to:

- making student learning and students' skills throughout the investigation process
- Provide a framework to guide teacher conduct and to also provide them thinking.
- Provide a professionally reputable and methodologically rigorous evidence base for learning and teaching innovation and improvement across the sector Indeed.

In contrast, Web2.0 features and affordances could allow a much more dynamic and social approach not only for teaching but also for engaging with and documenting teacher and student practice and activity. This conclusion suggests an intriguing area for future research and development. In addition, where the reflective thinking skills processes extend the professional understanding the learning processes also deepen the foundations for educational research with technological advancements that are yet to come.

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Appendix

Appendix 1 – The Questionnaire for Reflective Thinking

Guidance on completing this questionnaire[8]

A - Definitely agree

B - Agree only with reservation

C - Only to be used if a definite answer is not possible
D - disagree with reservation

E - Definitely disagree

NOW please read through the statements and respond quickly.

1 When I am working on some activities, I can do them without thinking about what I am doing	A	B	C	D	E
2 This course requires us to understand concepts taught by the lecturer	A	B	C	D	E
3 I sometimes question the way others do something and try to think of a better way	A	B	C	D	E
4 As a result of this course I have changed the way I look at myself	A	B	C	D	E
5 In this course we do things so many times that I started to do them without thinking about it	A	B	C	D	E
6 To pass this course you need to understand the content	A	B	C	D	E
7 I like to think over what I have been doing and consider alternative ways of doing it	A	B	C	D	E
8 This course has challenged some of my firmly held ideas	A	B	C	D	E
9 As long as I can remember handout material for examinations, I do not have to think too much	A	B	C	D	E
10 I need to understand the material taught by the lecturer in order to perform practical tasks	A	B	C	D	E
11 I often reflect on my actions to see whether I could have improved on what I did	A	B	C	D	E
12 As a result of this course I have changed my normal way of doing things	A	B	C	D	E
13 If I follow what the lecturer says, I do not have to think too much on this course	A	B	C	D	E
14 In this course you have to continually think about the material you are being taught	A	B	C	D	E
15 I often re-appraise my experience so I can learn from it and improve my next performance	A	B	C	D	E
16 During this course I discovered faults in what I had previously believed to be right	A	B	C	D	E

[8] © 2000 David Kember, Doris Y P Leung, Alice Jones, Alice Yuen Loke, Jan McKay, Kit Sinclair, Harrison Tse, Celia Webb, Frances Kam Yuet Wong, Marian Wong and Ella Yeung. Source of questionnaire: Kember *et al* (2000) "Development of a questionnaire to measure the level of reflective thinking", Assessment & Evaluation in Higher Education, 25(A), pp. 381-395.

Appendix 2 – The wording of items within each scale

	Scale
Item no.	**Habitual action**
1	When I am working on some activities, I can do them without thinking about what I am doing
5	In this course we do things so many times that I started to do them without thinking about it
9	As long as I can remember handout material for examinations, I do not have to think too much
13	If I follow what the lecturer says, I do not have to think too much on this course
	Understanding
2	This course requires us to understand concepts taught by the lecturer
6	To pass this course you need to understand the content
10	I need to understand the material taught by the lecturer in order to perform practical tasks
14	In this course you have to continually think about the material you are being taught
	Reflection
3	I sometimes question the way others do something and try to think of a better way
7	I like to think over what I have been doing and consider alternative ways of doing it
11	I often reflect on my actions to see whether I could have improved on what I did
15	I often re-appraise my experience so I can learn from it and improve my next performance
	Critical Reflection
4	As a result of this course I have changed the way I look at myself
8	This course has challenged some of my firmly held ideas
12	As a result of this course I have changed my normal way of doing things
16	During this course I discovered faults in what I had previously believed to be right