Best Practices and Effectiveness In Teaching Good Food Habits and Digestion Using Technology

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Abstract :

The purpose of this paper was to understand the impact of using Blooms Taxonomy and Blooms Digital Taxonomy in teaching good food habits and digestion.

The aim of the study is to know if students show more interest and perform better when technological tools such as websites and blogs are used in teaching good food habits and digestion.

The study concludes that there is a need for varied instructional strategies in teaching to make learning interesting and effective.

Plan Of Action

Hypothesis : There is no significant difference in using Blooms' Taxonomy and Bloom's Digital Taxonomy while teaching good food habits and digestion for Grade 7.

Strategy:

The middle school students of grade 7 from Our Own English High School, Sharjah (Main Campus) was taken for conducting the action research .Grade 7B and Grade 7j were taken for the study. Using a chart and a model, Grade 7B (control group**)** which had a strength of 30 students was taught Human digestive system, process of digestion and good eating habits.

Questions based on Blooms Taxonomy 6 skills were asked. It was an interactive class with students discussing on their food habits and about digestion. The class was divided into 4 groups and each group was to discuss on the questions given and revert with their answers.

The questions given as a part of group activity was based on the cognitive domain of learning.

On the same topic a class was conducted with grade 7j (Experimental group) using Blooms Digital Taxonomy, Students were given a brief introduction on the topic, and using the website www.medtropolis.com the same topic was taught. Students were also asked to try out a game on the website by fixing different organs according to the order of their functioning (CONSTRUCTING) .Students were assessed on the Blooms' Digital Taxonomy skill **CREATING.**

The experimental group were given the same questions and suggested to provide their answers on a blog, Students were provided with a link: http://www.humandigestivesystem.edublogs.org/ to blog and answer the open-end questions given.

Open-end Questions Given For Both The Groups:

- Why it is not recommended to have a heavy meal before the examination?
- Why should we not stay hungry for a long time?
- What happens when too much of food is eaten?
- What happens to the food that is digested?
- Why should we develop good food habits?
- Justify that too much of junk food is bad for health.

Based on the rubric framed the students answers were evaluated on a 5 point scale grading system. To make the study valid and reliable, the scores of just 15 students from both the groups were taken for a comparative analysis.

Research questions for the selected topic:

- Do students learn and perform well when the teacher uses web2.0 tools and other technological tools while teaching?
- How well do students understand when the class is taught with a website and an audio recording and the teachers role is less?
- What differences does it make to teach students with blooms taxonomy and blooms digital taxonomy?

Literature review:

Research in the areas of multiple intelligence (Gardener 1983) as well as brain research and gender differences (Gurian 2001) show the need for continuous professional development.

Access to computer and internet research connect students with up to date sources of information outside the text book. Teachers need to be aware of the textbook. Teachers need to be aware of the benefits and risks of Internet projects.

Research shows that the benefits of using computer and other technology in the classroom go beyond looking up information. In mathematics and science, computers and calculators allow students to pose and solve problems that are more difficult and to interact with real –world data that can be rather messy. There are social benefits as well.

Students may be more likely to collaborate with each other when involved with computer projects than they are in any other classroom tasks. (Cazden,1985).

A thorough review of the studies empirically examining instructional strategies has suggested that at least 4 categories of instructional design exist (a) Quality of instructor (B) Quality of training activity (c) Learning support (d) Study workload. In terms of instructor quality, instructors command of subject matter and ability to make clear and understandable presentations during class were frequently cited among studies (Lim2002). Researchers also have examined several salient instructor variables' such as the use of general rules and principles for learners to apply to the lecture content (Gold stein 1986)and a greater specificity of instructional content to be applied in other settings (Clark &vogel1985).

Concerning improvement in the quality of learning activites, research studies have suggested several instructional strategies that include (a) planned goal-setting prior to the learning experience Wexley& Nemerof

1975)(b)utilization of action planning methods(Foxan 1997)and (c) the inclusion of various instructional methods like application examples in various contexts, the use of analogies and the usage of computer simulations during the learning process (Garavaglia1997).

As an indicator of quality learning activities research involving the students satisfaction with instructional programs has shown seven instructional areas influence satisfaction: Those areas include satisfaction with the instructor, instructional methods/activities, learning objectives, logistical matters, topics/content, planned action/transfer and course materials (Sanderson1995).Finally, study workload has been empirically

examined as an instructional design construct in a few studies. In comparing students study time between online versus classroom instruction Oh and Lim (2005) found that online students spent more time completing one week's course than those with class-room based courses.

The education community has a responsibility to properly prepare students to the technological world. Wittie (2007) reminds us that every student should be technologically literate by the eighth grade; schools must focus their efforts on bridging the gap between traditional definition of literacy and technologies. Being literate no longer involves being able to read and write.

A problem solving teacher understands and uses formal and informal assessment tools to track and promote the continuous intellectual and social development of her classroom. Unfortunately recent emphasis on accountability has perhaps taken our attention away from using a variety of assessment to guide student development. (Guskey 2003)

Employing a true experiment with pre/post-test control group design, Waks and Sabag (2004) investigated the influence of the use of project-based learning on student achievement compared to the traditional training or via lab experiments .Of particular interest was the extent to which achievements in digital electronics improved when learning in a project /technology –based environment compared to the achievements of students who conducted structured laboratory experiments. A sample of second year students majoring in engineering technology was assigned randomly to an experimental group and to a control group. All aspects were equal, including student demographics and achievement levels, except that the control group performed lab experimentation

while experimental group was assigned a project. Ultimately, the results established the students in the experimental group achieved stastically significant higher grade academically than those students in the control group.

Pauchnick 2006 explained as how using technology has changed everything for her and her students. She says “It is essential to have technology in the classroom. My students are addicted to technology. In fact, they spend between 30 minutes’ and 3 hours a day on their blog pages. I see this addiction as a catalyst to educational improvement. I can tell you with my first hand experience that collaborative learning is gripping the nation and education because it does enhance learning and students are much more engaged.

Rebecca set up a classroom blog using Blogger (2008), and she and her students began learning about and exploring the world of blogging together. Students watched an informational video about blogs onAbout.com (2008) and read a variety of online articles and blogs before they began posting. For Internet safety and confidentiality, her students each chose a pseudonym to use while posting and could only post when she was signed into the blog. Her students wrote book recommendations, responded to and discussed current events and added comments on other postings. Blogs can also be used to post homework, a classroom calendar, or podcast lessons, and to get feedback from students. Asking students to post to the blog limits the amount of paper used in the classroom.

Rubrics used for the study

BLOOMS TAXONOMY

Organization and structure 2	Demonstrates knowledge 1	CREATVITY AND ABILITY TO COMMENT ON THE BLOG 2
Constructs ideas and thought in an orderly manner. Able to link sentences and present information systematically.	Able to understand the content and apply knowledge and understanding of the subject	Able to stretch imagination and expresses ideas and give solutions for the problem.

Rubrics for the blog

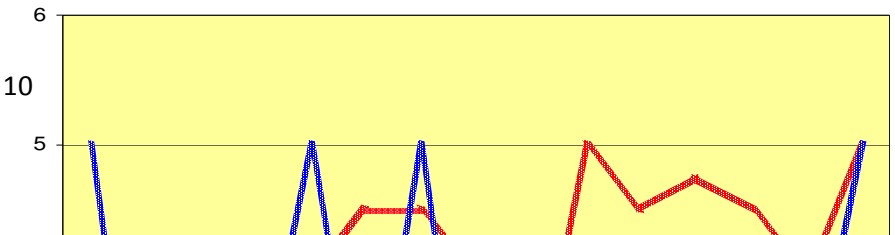
	Blogging	Understanding	Timeliness
1& 2	Poor spelling and grammatical errors. Short 1 to 2 sentences. Lacks structure or flow. Appears hasty. Written in informal language or txt.	Simple entry lacks insight, depth or is superficial. Entry is short and frequently irrelevant to the events. Does not express opinion clearly. Shows little understanding.	Entries are irregular.
3	Some poor spelling and grammatical errors. Has some structure, but the entry does not flow. May contain a link or image.	Simple entries showing some insight, depth and are connected with events, topic or activity. Entries are short and may contain some irrelevant material. Some personal comments or opinions these may not be on task. Shows some understanding.	Most key events are journalled. Some comments are replied to.
4	Few spelling and grammatical errors. Has structure and the entry flows. Contains appropriate links or images. These are referred to within the text.	Entries show insight, depth and are connected with events, topic or activity. Entries may contain some irrelevant material. Personal opinion is expressed in an appropriate style. Shows a good depth of understanding.	Events are journalled. Most comments are replied to in a timely manner.
5	Spelling and grammatical errors are rare. The journal entry has structure and is well formatted to enhance readability. Contains appropriate links or images. Image sources are acknowledged. Images and links are referred to within the text.	Entries show insight, depth and understanding. They are connected with events, topic or activity. Entries are relevant with links to supporting material. Personal opinion is expressed in an appropriate style and is clearly related to the topic, activity or process. Shows a high level of understanding and relates events, activities & processes to purpose, learning outcomes and objectives.	All events are journalled and the entries are regular and timely. All comments are replied to in a timely manner.

The students are rated on a 5pointscale grading system as given below :

Grading for the scores

5= A+
4= A
3 =B
2 = C
1= D

GRAPH SHOWING THE SCORES OF STUDENTS



RATING SCALE
5 - Outstanding
4- Very Good
3 – Good
2- Satisfactory
1-Needs Improvement

Blooms Taxonomy	3	3	3	3	4	4.5	4.5	4	3	5	4.5	4.75	4.5	4	5
Blooms Digital Taxonomy	5	2	4	3	5	2.5	5	2	2	3.5	2	4	3	3	5

RESULT ANALYSIS

Using the grades obtained by students in both the classes (**7b and 7j)** a graph was made to study the difference.

The following observations were made based on

Blooms Digital Taxonomy :

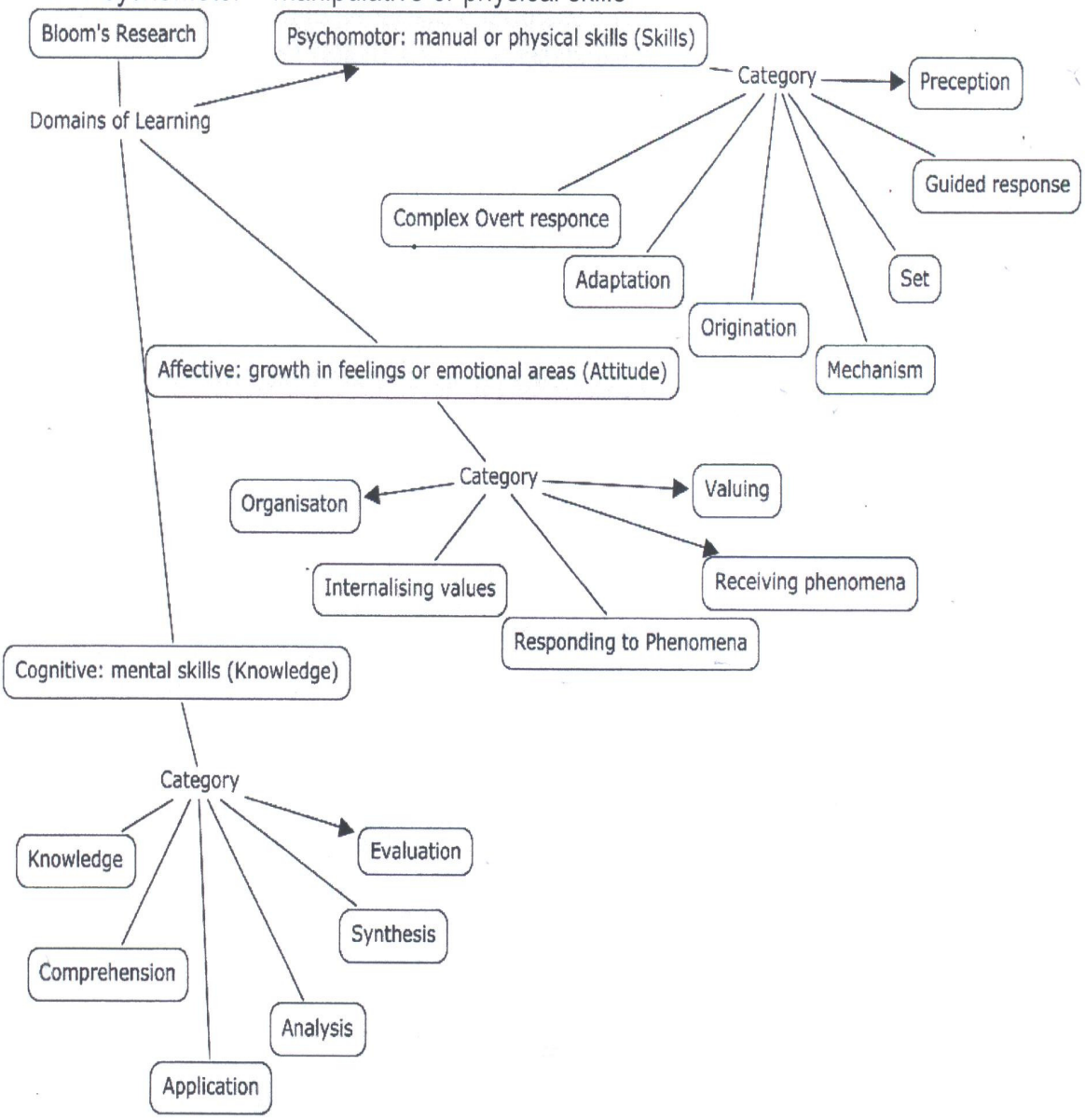
- There was a significant difference between the grades obtained by students who were taught with blooms digital taxonomy to that of students taught with blooms taxonomy.
- The comments added by the students had limited discussion by some of them; many of them did not provide critique of other posts.
- As the students are not trained on using blogs it was noted that many students were not able to operate the blog well, in spite of having the link.
- Students enjoy working collaboratively than working individually. The collaborator (Team leader) has considered the abilities of other users and the potential limitations of their connections so that the content is available to all.
- When teachers frame their strategies understanding the classroom climate, the students benefit more and are willing to take up challenges.(Brophy's principle)
- A great amount of interest is shown by students to blog and write the answers.
- When practice is involved with opportunities not only to apply skill but also provide timely feedback, it will help students to assess their progress with respect to major goals and correct errors or misconceptions.(Brophy and Alleman 1991)
- As individual laptops and PC's are not available, the students were not able to put in their complete effort.
- Teachers and students need to learn to use web2.0 tools to make teaching and learning interesting and effective.

APPENDIX A

Bloom's Taxonomy

In the 1950's Benjamin Bloom developed his taxonomy of Educational Objectives
He proposed that learning fitted into one of three psychological domains:

- Cognitive – processing information
- Affective – Attitudes and feelings
- Psychomotor – manipulative or physical skills

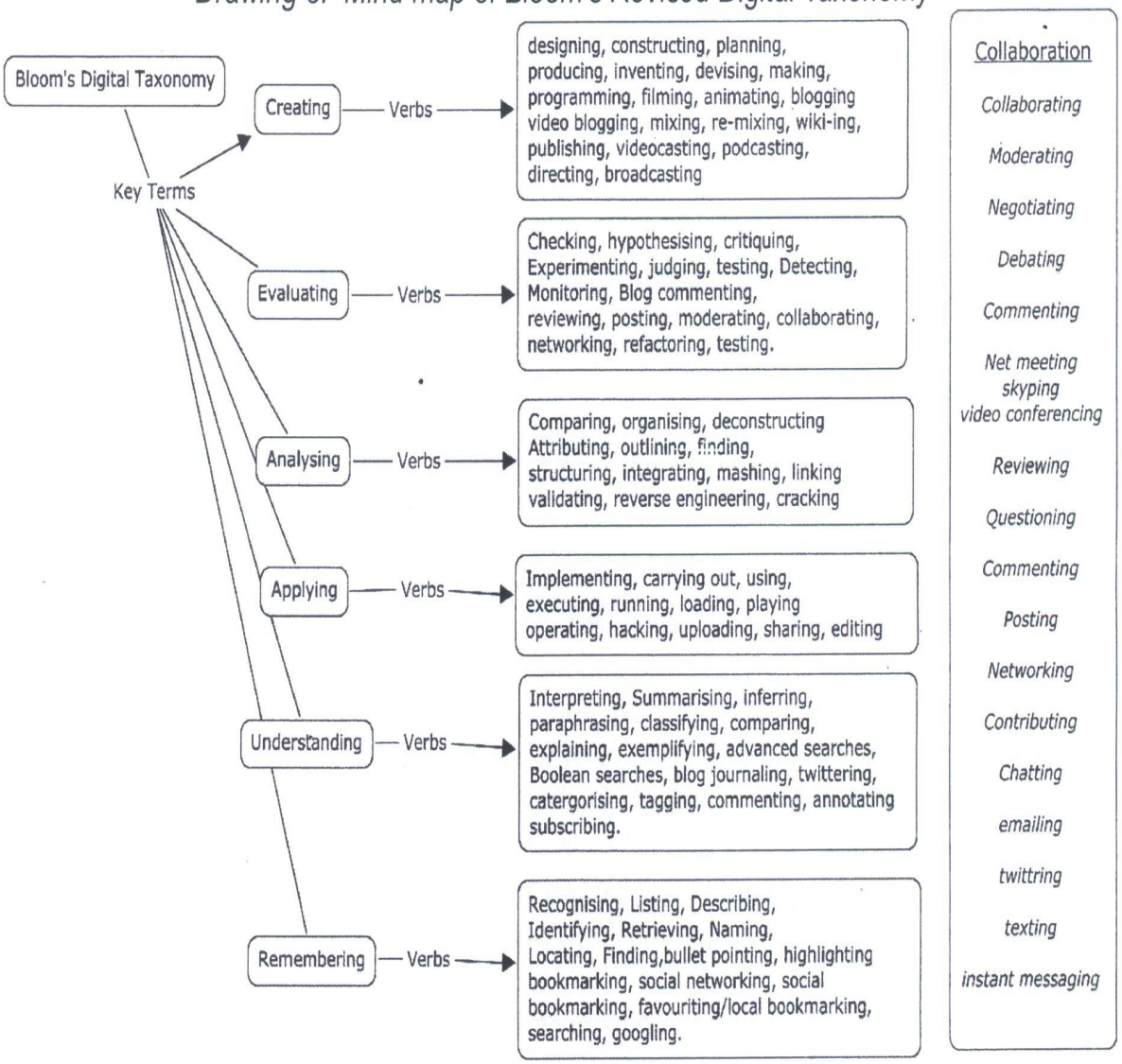


APPENDIX B

Bloom's Digital Taxonomy

Bloom's revised digital taxonomy map

Drawing 3: Mind map of Bloom's Revised Digital Taxonomy



Drawing by A Churches created using C-Map Tools

Conclusion:

Teachers should build on the experiences that students bring to class, help them to articulate what conceptions they already have of the natural world and provide them with experiences where students can rethink or even restructure their conceptions in the face of new evidence and new explanatory ideas.

As blogging helps students to gain valuable 21st century skills such as digital literacy and allows students to interact with students of their own age group, it is essential the teachers are trained as how this technological tool can be used in their class.

Teachers are likely to be the most successful, when they think in terms of stretching students minds by stimulating them and encouraging them to achieve as much as they can. To be successful in the world, students must learn to manipulate various forms of new media with a high level of comfort and skill, and school must become a place where students can acquire the necessary skills for technological success. It is time to begin taking steps to close the digital divide. Students will definitely perform well if they have practice and exposure and when the teacher is enthusiastic. Effective teachers' display enthusiasm for the content and organize and sequence it so as to maximize its clarity and coherence.

(Beck &Mckeown1988)

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