BRAIN-BASED TEACHING FOR UNIVERSITY IN DIGITAL ERA: DOES IT WORK?

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Abstract
In an effort to keep up with today's advanced students who lives in a digital era, a teaching learning process used is changing. It is on the line with an age where all aspects of human life are based on the how the human brain work, with no exception in learning (Buzan, 2011). This research strived to describe the implementation brain-based teaching in the digital era at the University. Method: To this end, 42 lecturers of Bina Nusantara University who have good quality of lecturing were selected using purposeful sampling. In this investing used percentage and table analysis. The instruments used, included, test, questionnaire, and observation. The gathered data were analyzed using descriptive statistics. The results: Based on that, results revealed that the brain-based teaching for university can be grouped by four aspects. Conclusion: This research showed that the lecturers have been preparing the students in digital learning which consisted of preparing students to skills in communicating, accessing information, being skillful in e-learning and collaborating with the lecturer. The lecturers gave the students some opportunities to actively engage implementing the learning variations and evaluating the students.

Keywords: *Brain-based Teaching, Digital Era, Higher Education, Intelligence Aspects, Planning Principles,*

INTRODUCTION

A university as an educational institution is expected to be able to produce graduates who are competitive, intelligent, and able to adapt the change and stakeholders' need. Therefore, it is necessary to improve the quality of learning which is based on the students' centered and real problems as well as future-oriented. In an effort to keep up with today's advanced students who lives in the digital era, a teaching learning process used is changing. On the line with it, there is a new paradigm about learning that creates meaning, value, and practical knowledge which sources from within the students.The learning will quickly improve if it is rich of social environment in collaborations, knowledges, involving the whole body, emotion, and all aspects of intelligence. The research objective was to describe brain-based teaching for university in the digital era. The

university that researcher conducted the research was Bina Nusantara University. It is a quality private university with the accreditation score of A and applies international standard.

In that university, this research determined to figure out the way of lecturing according to brain-based teaching. It consists of a collection of teaching techniques used by the lecturers to improve the teaching learning process. As Jensen believes, brain-based learning is that type of learning which compatible with the learning mechanisms of the brain (Jensen, 2000). Generally, the ultimate goal of brain-based learning is abandoning the parrot fashion learning and moving toward meaningful learning and it asks for three interactive elements at university. The first one is Orchestrated Immersion. In this method learning is designed in a way that the students are practically immersed in the learning experiences. The second one is Relaxed Alertness on which this study is based. It tries to remove the learner's fear and persuade him/her to internalize what he learns and receives. The last one is actively processing in which the learner is given the chance to consolidate the learning he/she receives and to internalize it (Caine & Caine, 1990; Awolola, 2011).

As far as three interactive elements above, it concerns the learning material, the brain-based learning favors the enrichment of learning setting. In this approach, it strives to offer various incentives, present challenging information and provide feedback, through establishing emotional security in students in order to manage the learning process (Talkhabi, 2008). In brain-based learning approach, learning best occurs through a wide variety of activities such as using music, art, colors, images, graphs and metaphors (Duman, 2004; Duman, 2006). Factors such as diet, the amount of sleep taken, oxygen intake, physical activity, sports, and the amount of water the students drink also affect, how our brain responds and learns (Duman, 2006).

Besides the brain-based learning, the brain-based teaching for university in the digital era applies planning principles. It covers for: (1) planning with four stages of learning cycles, (2) overshadowing the learning style, (3) creating the plan based on activities, (4) creating the learning society, (5) varying an active and passive physical activity, (6) proportioning the activity 30% of lecturers and 70% of students, and (7) creating flexible design, open-ended. For the first stage, the learning plan applies the principle of four stages of learning cycle, including preparation, presentation, practice, and performance. The second stage is emphasized. 80% of energy, time, and money, meanwhile the 1st, 3rd, and 4th principles are ignored. Literally, the most important thing is how stage 1, 3, and 4 need to be considered. The principle of brain-based teaching is how to engage

a wide emotional intelligence, intuition and virtue that comes from physical exercise, multi-sensory, non-linear, multi-disciplinary, non-rational in order to use a variety of learning model. A traditional planning provides some treatments to students, which have a lot of activity. Generally, the difference between the traditional planning and planning for brain-based teaching covers: the traditional planning is more oriented to rational, mind-oriented, mechanistic, rigid and fixed, serious, hierarchy, individual, cognitive, media centered, decisive, behavioristic, the left hemisphere, the emphasis on form. While planning for brain-based teaching includes: rational-emotive, mind / body orientated, natural, flexible, playful, democratic, collaborative, multi-sensory, student centered, creative, humanistic, whole brain, the emphasis on function. In case, the planning of brain-based teaching puts the students from experience.

The brain-based teaching demands the lecturers' ability to give pay attention to the students' multiple intelligence frameworks which developed by Gardner, including: the intelligence frame of language, logical-mathematical, visual-spatial, bodily-kinesthetic, interpersonal, intrapersonal, musical-rhythmic, and naturalistic. The lecturers need to identify the students by non-test through interaction with them. There are many ways to implement the theory of multiple intelligences into the curriculum. Some lecturers establish the learning centers with resources and learning materials to promote the different learning treatment to the different intelligence.

Furthermore, another aspect that need to be considered is the learning style of the students. Every human being has a different learning style such as auditory, visual, and kinesthetic learning style. It was related to the dominant ability possessed by students. The wide variety of learning activities can be done by lecturer to facilitate the different learning style. In the digital era, the lecturers can stimulate students who are dominant in kinesthetic learning style with some activities such as moving, demonstrating, printing out the retrieval, resting elsewhere, creating a mind map (pictogram), questioning cards, manipulating objects, playing and boarding games, acting, physical energizing, walkman reviewing, personal interviewing, and personal observation.

The students who are dominant in auditory can be stimulated by some activities which use multimedia such as audio introduction, learner dialog, concert review, take – home audiotape review, auditory paraphrases, reading aloud, question/answer audiotape, interview, auditory mnemonics, thinking out loud. Besides, it also can be used a web in the class. It includes of: (1) using the web both individual/group, (2) holding the web competition, sharing

with friends (product, service, marketing), (3) using the web in order to see the function, (4) creating a message in the board, (5) creating other activities to collaborate it on the web.

METHODS

To this end, 42 lecturers of Bina Nusantara University who have good quality of lecturing were selected using purposeful sampling. In this investing used percentage and table analysis. The instruments used, included, test, questionnaire, and observation. Observation sheets were used in the actual teaching demonstration, side remarks are noted as part of the field notes. The gathered data were analyzed using descriptive statistics.

RESULTS AND DISCUSSION

The brain-based teaching for university can be grouped by four aspects. The first aspect was preparing students in digital learning. Based on the collected data, it can be shown by the table below:

Table 1. Preparing Students in Digital Learning.

No	STATEMENTS	TP	1-3	>5
1	Students are prepared to be skillful in communicating	0	42.9%	57.1%
2	Students are prepared to access information the internet	0	21.4%	78.6%
3	Students are prepared to be skillful in e-learning	2.4%	38.1%	59.5%
4	Students are prepared to collaborate the lecturer	2.4%	30.9%	66.7%

Based on table 1, it can be concluded that 57% of students are equipped with the preparation to be skillful in communicating, furthermore 78.6% of students are equipped with the preparation to access information from the internet and 59% of students are equipped with the preparation to be skillful in e-learning, and 66.7% are equipped with the preparation to collaborate with lecturers. Thus, it can be concluded that the lecturers have been preparing the students in digital learning, covering the preparing students to be skillful in communicating, accessing information, be skillful in e-learning and collaborating with the lecturer. The second aspect was the students' involvement in the lecture. Based on the collected data, it can be shown by the table below:

Table 2. Students' Involvement in the Lecture.

No	STATEMENTS	TP	1-3	<5
5	Giving the students chance to actively involve	2.4%	23.6%	74%
6	Developing the variety of active physical activity.	9.5%	35.7%	54.8%

Based on table 2, it can be concluded that 74% of students are given a chance to actively involve in the lecture. Besides, 54% of students are developed an active and passive physical activity in the class. Thus, the lecturer has already given the students chance to actively involve. The third aspect was giving learning variation. Based on the collected data, it can be shown by the table below:

Table 3. Using Variation in Learning

No	STATEMENTS	TP	1-3	<5
7	Giving mind map assignment	40.5%	38.1%	21.4%
8	Intersperse the activity with music	61.9%	23.8%	14.3%
9	Providing story and video program	33.3%	42.9%	23.8%
10	Using certain blog in the lecture	21.4%	52.4%	26.2%
11	Using multimedia	7.2%	33.3%	59.5%
12	Developing learning with audio tape	50%	28.6%	21.4%

Based on table 3 about learning variation of brain-based teaching, it can be concluded that:

1. Giving mind map assignment; 40% of lecturers answered never, 38% do it as much as 1-3 times and 21% carry more than 5 times;
2. Intersperse learning activity with music; 61% of lecturers answered never, 23% do it as much as 1-3 times in a semester and 21% do it more than five times. Thus the lecturers lies in intersperse the learning with music;
3. Providing stories and video program; 33.3% of lecturers answered never, 42.9% do it much as 1-3 times, and 23.8% implement it more than 5 times;
4. Using certain blog in the lecture; as much as 21.4% of lecturers answered never, 52.4% do as much as 1-3 times, and 26.2% do it more than 5 times;
5. Using multimedia; as much as 7.2% of lecturers answered never, 33.3% do it as much as 1-3 times, and 59.5% do it more than 5 times; and

6. Developing learning with audiotape: as much as 50% of lecturers answered never, 28.6% do as much as 1-3 times, and 21.4% implement it more than 5 times.

Thus, it can be concluded that the use of multimedia is mostly used by the lecturer in learning. What has not often been done by the lecturer is intersperse the learning activity with music and giving a mind map assignment. The fourth aspect was evaluating the students as shown in the table below:

Table 4. Evaluating the Students

No	STATEMENTS	TP	1-3	<5
13	Monitoring the students' assignment	2.4%	42.8%	54.8%
14	Creating the learning environment the web	9.5%	40.5%	50%
15	Monitoring the students' experience using e-learning	19.1%	30.9%	50%

Based on table 4 about the evaluating the students, it can be concluded that the lecturer monitored the student: as much as 2.4% of lecturers answered never, 42.8% do it as much as 1-3 times, and 54.8% do it more than 5 times. The lecturer created the learning communities: 9.5% of lecturers answered never, 40.5% do it as much as 1-3 times, and 50% do it more than 5 times. The lecturer monitored student experiences with e-learning: 19.1% of lecturers answered never, 30.9% do it as much as 1-3 times, and 50% do it more than 5 times.

Thus, the lecturers have been conducted the evaluation to the students through some activities which consisted of monitoring on the students, creating learning communities and monitoring the students' experience.

CONCLUSION

This research strived to describe the implementation brain-based teaching in the digital era at University. Based on that, results revealed that the brain-based teaching the university can be grouped by four aspects. The first aspect was preparing students in digital learning. The second aspect was the students' involvement in the lecture. The third aspect was giving learning variation. The fourth aspect was evaluating the students. Thus, the lecturers have been conducted the evaluation to the students through some activities which consisted of monitoring of the students, creating learning communities and monitoring the students' experience. The lecturers have been

preparing the students in digital learning which consisted of preparing students to skills in communicating, accessing information, being skillful in e-learning and collaborating with the lecturer. The lecturers gave the students some opportunities to actively engage, implementing the learning variations and evaluating the students.

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