

IMPLEMENTING INSTRUCTIONAL SYSTEM DESIGN BETWEEN TAIWAN AND INDONESIA VIA ONLINE TEACHING

Yeni Rachmawati

*(Ph.D. Student at National Dong Hwa University, Taiwan;
Instructor of Indonesia University of Education)*

Cheng-Hsiung Lu

(National Dong Hwa University, Taiwan)

Hui-Hua Chen

(National Dong Hwa University, Taiwan)

Ocih Setiasih, Leli Kurniawati

(Indonesia University of Education)

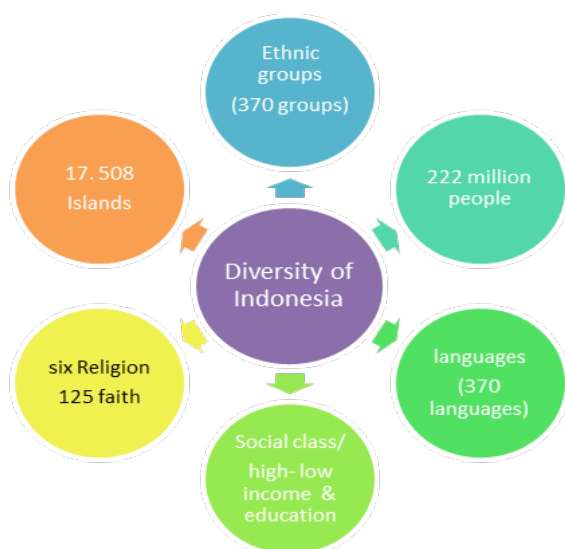
Abstract

The purpose of this study is to share information about the necessity of multicultural education in Indonesia through online teaching held at National Dong Hwa University, Taiwan, and Indonesia University of Education, Indonesia. As multicultural education will help students create equal educational opportunities from diverse racial, ethnic, social-class, and cultural groups, one of its important goals is to help all students to acquire the knowledge, attitudes, and skills needed to function effectively in a pluralistic democratic society and to interact, negotiate, and communicate with people from diverse groups in order to create a civic and moral community that works for the common good. This study has implemented “Dick, Carey & Carey model” through online teaching approach. This research involved one male and fourteen female of fourth semester of undergraduate students majoring in Early Childhood Teacher Education at Indonesia University of Education. The results may not be generalized to other teaching institutions due to the limited number of the participants. This research was conducted in Department of Curriculum Design and Human Potentials, National Dong Hwa University, Taiwan and in Department of Early Childhood Teacher Education, Faculty of Education, Indonesia University of Education. The distance between Taiwan and Indonesia, limitation of the media, tools and internet connection did not affect the learning process as long as the teacher prepared the needed materials. Online teaching could achieve good improvement, similar to traditional teaching using “face-to-face” situation. By using Dick, Carey & Carey’s instructional system design, students were able to enhance their understanding about this theme of learning. This condition showed the increase of students’ performance mean scores from 5.142 to 8.928 with four students able to get posttest scores 100% correct, seven students 90% correct, two students 80% correct, and only one student 60% correct. According to the percentage of the average score of posttest, the teaching activity by using this approach has succeeded to improve students’ understanding about multicultural education. In addition, the percentage of each item has increased as well. The comparison between pre and post test has shown that the lowest score on pretest was 2.0 and the highest one was 7.0. The result has dramatically increased on the posttest scores with the lowest score 6.0 and the highest score 10. The rising scores ranged between 2-6 scores with an average of 3.785 point. Consequently, the online teaching by adopting Dick, Carey & Carey’s ISD model has improved student’s learning performance.

Keywords: *instructional system design, multicultural education, online teaching, traditional teaching,*

Introduction

Indonesia is the largest archipelago in the world. Therefore, multicultural issue is something important in this country. Indonesia is located on the equator, between the continents of Asia and Australia, and between the Pacific Ocean and the India Ocean (Albert, Trommsdorff, Mayer, & Schwarz, 2005; Kementrian Sekretariat Negara RI, 2013). The population in Indonesia is around 222 million people in 2006 (Kementrian Sekretariat Negara RI, 2013). Thus, Indonesia becomes the world's fourth most populous nation after China, India and the US (Population Reference Bureau, 2003; Kementrian Sekretarian Negara RI, 2013). Furthermore, Indonesia consists of 17,508 Islands (Kementrian Sekretariat Negara RI, 2013) with around 370 ethnic groups and languages (Amalee et al., 2007). According to Kementrian Kebudayaan dan Pariwisata (Maskur, n.d.), Indonesia has 125 faiths with six religions which are acknowledged and approved by state, namely Islam (88%), Catholic and Protestant (8%), Hindus (2%), Budha (1%) and Konhuchu (1%) (CIA cited in Albert et al., 2005). Therefore, Indonesia is very diverse in nature (Miksic, 2002; Kosasih, n.d.). The whole picture which portrays the demographic reality in Indonesia is as follows:



Picture. 1 Diversity of Indonesia

Indonesia is a diverse country, but the issue of multicultural education is still new in society. However, several studies and researchers have discussed about these issues which are conducted around 2000s (Suparlan, 2002; Lubis, 2006; Syaifuddin, 2006; Amirin, 2012).

The purpose of this study is to share of information about the necessity of multicultural education in Indonesia through teaching online held in National Dong Hwa University, Taiwan and Indonesia University of Education, Indonesia. Multicultural education will help student create equal educational opportunities from diverse racial, ethnic, social-class, and cultural groups. One of the important goals is to help all students acquire the knowledge, attitudes, and skills that are needed to function effectively in pluralistic democratic society and to interact, negotiate, and communicate with people from diverse groups in order to create a civic and moral community that works for the common good. Moreover, from this study, students would make reflection in their own country, and strengthen their national identity.

1. Instructional System Design Models

a. Definition

Instructional Systems Design (ISD) Models are systematic guidelines of instructional designers that aim to create a workshop, a course, a curriculum, an instructional program, a training session, or the instructional materials and products for educational programs. ISD is a process to ensure that learning does not occur in a haphazard manner, but is developed using a process with specific measurable outcomes. The responsibility of the instructional designer is to create instructional experiences, which ensures that the learners will achieve the goals of instruction (Rao, 2013, p. 7).

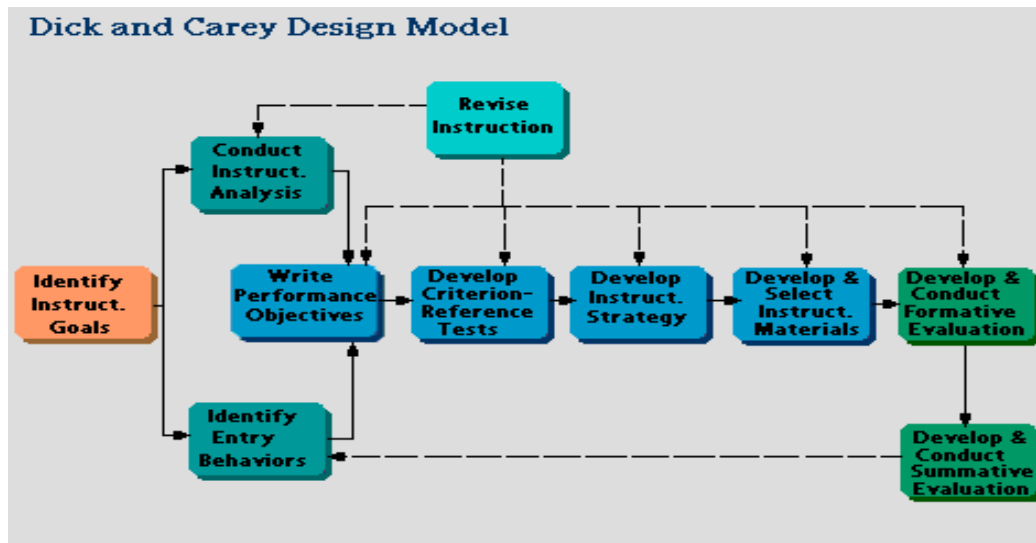


Figure 1.
Dick and Carrey Instructional System Design Model

b. Components of the systems approach model

The components of instructional system design of Dick, Carey & Carey (2005) include: identifying instructional, conducting instructional analysis, analyzing learners and contexts, writing performance objectives, developing assessment instruments, developing instructional strategy, developing and selecting instructional materials, designing and conducting formative evaluation of instruction, revising instruction, and designing and conducting summative evaluation.

2. Online Learning

Online learning is inherently related to Information and Communication Technology (ICT). Online learning has three categories: the ubiquitous workstation (usually means a multimedia PC equipped with a web browser), the communication technologies that enable widespread learner networking and access to the web, and the software tools that enable educationalists to author and deliver online learning (McPerson & Nunes et al., 2004). At the beginning of the 1990s, only handful educators and educational researchers who were seriously involved in creating and

teaching Alnetwork courses, yet a decade later millions of student went online, not only in the United States but also around the world (Hiltz & Goldman, 2005). The use of computers was verified in the US Departements of Labor and Education's report entitled "What Work Requires of school: A SCANS Report for America 2000", which includes the following five competencies needed by todays workforce: works with a variety of technology, selects technology-chooses procedures, tools, or equipment, including computers and related technologies, applies technology to task – understands intent and proper procedures for set up and operation of equipment, maintains and troubleshoots equipment-prevents, identifies, or solves problems with equipments, including computers and other technologies (SCAN cited in Morrison & Lowther, 2005).

Online education is a growing field with over 30% of college students taking at least one online course last year (Allen & Seaman, 2014). Many colleges and universities are exploring ways to expand or extend their programs to students online. Some programs are offering online courses, while others are incorporating online components into their existing courses.

Researchers have argued that online courses can be “as effective as traditional instruction when the method and technologies used are appropriate to the instructional tasks, that is student-to-student interaction and timely teacher-to-student feedback” (Hamzaee, 2005, p. 216).

Changing circumstance within the world at large and the increasing accessibility of technological solution are driving those of us who work in further education and higher education institution to develop innovative learning strategies and solution in order to respond to escalating demands from both society and industry, through the adoption of flexible online learning environment. Within online learning environment, educationalist are now able to reach increasing number of student in traditional higher education, further education, distance education and continuing professional development (Berge and Collin, cited in McPerson & Nunes et al., 2004)

Will and Alexander (McPerson & Nunes et al., 2004) explain that technology itself does not change or improve teaching and learning. Attention to management processes, strategy, structure, and most importantly roles and skills, are the key to successfully introduce technology in university teaching and learning.

The aforementioned technology is described as the most recent educational panacea being used to try and provide student with transferable skills, namely online communication, online discussion and negotiation of meanings (Ausserhofer, cited in McPerson & Nunes et al., 2004).

Khakhar and Quirchmayr defend the idea that such a framework should focus on how technology can support tutors and educationalists in their capacity to provide learners with high quality learning environments, materials, and learning and teaching strategies, within the institutional and social environment in which they are embedded (McPerson & Nunes et al., 2004). This framework should aim at: improving the quality of the organisational environment in

which online learning takes place, developing pedagogical frameworks appropriate to the environment in which learning is taking place, enhancing the skills of teachers, trainers and managers in the use of innovative methods and techniques, ensuring the quality and user friendliness of learning materials and online services, encouraging the recognition of qualifications obtained through online learning (Goodyear cited in McPerson & Nunes et al., 2004).

a. Online Tutoring Strategies and Skill

McPerson & Nunes et al. (2004) states that tutoring online is definitely different from traditional instruction; it needs some support due to its challenging procedure. He then describes four main online tutor roles as Berge identifying:

Pedagogical and intellectual roles. These aspects play some of the most important roles for the online learning process (Paulsen, 1995). The online tutor uses questions and probes for learners’ responses that focus on discussion of critical concepts, principles and skills (Zafeiriou, 2000). These roles may involve opening discussions, focusing on relevant content and issues, intervening to promote interest and productive conversation, maintaining students to involve in discussion, and summarising debate

Social roles. It involves the creation of friendly and comfortable social environments in which learners feel that knowledge is possible.

Managerial or organisational roles. It involves setting learning objectives; establishing agendas for the learning activities; timetabling learning activities and tasks; and clarifying procedural rules and decision-making norm (Mason, 1991; Paulsen, 1995).

Technical roles. It is possibly the most daunting aspect for academics as it involves competence of ICT system and software that compose the online learning environment.

Numerous authors, such as Gerrard (2002) and McPerson & Nunes et al. (2004)

assess that online environment: places greater emphasis on written skills, produces a more formal tone, does not follow a linear conversation but instead promotes multiple conversations, does not confine tutoring to specific time, places greater emphasis on student-student learning, requires tutors to develop new ways of encouraging participation, and requires tutors to assess the worth of online contributions



Figure 2.
Online tutoring roles

b. Time for Change

Changes to the educational system are often met with marked resistance, regardless the recommended alternations that are proposed or the advanced technologies that offer new opportunities (Hiltz & Goldman, 2005).

Method

This teaching and learning activity has implemented Dick & Carey model (2005) through teaching online approach. This model is well known as an innovative model in constructed curriculum and teaching method to design, analyze, develop, implement and evaluate instruction.

Dick & Carey's theory offers a linear method, which fulfills the empirical and replicable process for the purpose of the study. The auxiliary explanations of the research subjects and instruments are respectively designated as follows:

Research subject and characteristic. The subjects on this research are fourth semester of undergraduate students who are majoring

in Early Childhood Teacher Education at Indonesia University of Education. They consist of one male and fourteen female students whose average age is 20 years. Multicultural education is one topic of the Social science for early childhood education course.

As the instructor, I encouraged students to know the issue of multicultural education in the world and the connection to Indonesia. We discussed the issue from the beginning of Indonesia independency, our cultural diversity condition, and the challenge in the future.

As young generation, they have responsibility to protect the cultural diversity from extinction. The students are supposed to have positive attitude in this topic.

Obtain the Research Subjects. The class will implement teaching online approach. I, as a teacher, will lecture in NDHU, Taiwan and my students will study at Indonesia University of education. I will use Power Point to raise students' motivation and give some attraction in my way of teaching. I will also arrange the PPT with variation of color, graph and a lot of pictures. Then I put some activities for students to sing medley songs of nusantara. This song is related to national identity of Indonesia that has been mentioned in my content. Toward this activity, students will enjoy and feel excited in the activities. To make the activities more meaningful, optimum, and enjoyable, I collaborate with a colleague of mine who becomes a musical instructor in my department. In the last activity, we will discuss some issues and interactive communications.

Place and location the research. This research will be conducted in Department of Curriculum Design and Human Potential, National Dong Hwa University and in Department of Early Childhood Teacher Education, Indonesia University of Education.

National Dong Hwa University is the biggest campus in Taiwan. It was founded in 1994. Similar to Dong Hwa University, Indonesia University of Education is the biggest and the oldest Educational University in Indonesia. It was founded in 1954.

Design Models. In this study, I would implement ISD through teaching online as a part of Instructional System Design model. At the time of applying teaching-learning activities, I would give a pre test first. Student will watch the video afterwards. They would be given the post test.

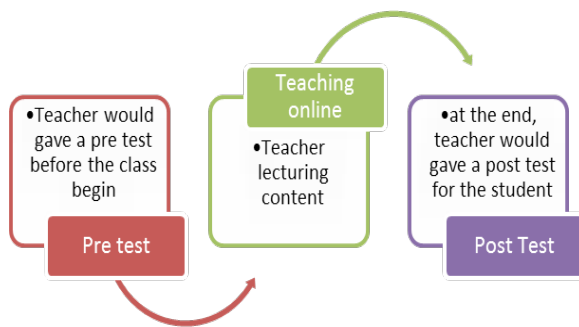


Figure 3.
Design teaching-learning model

Research Instrument. This research will use an instrument to evaluate academic achievement of the students, and teacher's performance. For students' achievement, I use pretest and posttest. For teacher's performance, students' and peer review feedback will be used.

Research Limitation. The teaching online will present about the necessity of multicultural education in Indonesia at social studies courses. This class contains 14 students of Early-Childhood Teacher Education Departement. The teaching duration is around 60 minutes; 10 minutes for pre test; 40 minutes for lecturing; then 10 minutes for post test. The results may not be generalized to other teaching due to the limited number of the participants.

Result and Discussion

Teaching online was implemented on 4th June 2014 at the seminar room C317 Departement of Curriculum Design and Human Potential Departement, National Dong Hwa University. Teaching online was connected to Indonesia in Room 306 at Early Childhood Teacher Education Departement,

Faculty of Education, Indonesia University of Education. The class in Taiwan was attended by 11 students and in Indonesia was attended by 14 students.

The teaching online started at 10.30 a.m. until 12.00 p.m. The class was begun by introducing the group member in National Dong Hwa University and Indonesia University of Education. Furthermore, the teacher offered pretest for about 5 minutes, then gave lecture, sang and discussed together. At the last session, posttest was conducted.

Analysis of Pretest, Posttest Scores. Teaching online can achieve good improvement, similar to traditional teaching that using "face to face" situation. The distance between Taiwan and Indonesia, limitation of media, tools and internet connection did not influence and distract the learning process as long as the teacher prepared all materials well.

After implementing teaching online by using Dick, Carey & Carey's instructional system design, the students were able to enhance their understanding about this phenomenon. This condition was revealed by table 8.1 that showed the increase of students' performance score mean from 5.142 become 8.928. Four students were able to get posttest score 100% correct, seven students got 90% and two students got 80%, and only one student got 60%.

According to percentage of the average score of posttest, the teaching activity by using this approach has improved students' understanding about multicultural education. In addition, the percentage of each item has increased as well.

The comparison of chart above has shown that the lowest score on pretest was 2.0 and the highest score was 7.0. The number dramatically increased on the posttest score, the weakest score was 6.0, and the strongest was 10. The rising score between 2-6 score, in average the rising point was 3.785 point. So, the teaching online using ISD Dick, Carey & Carey model has improved students' performance.

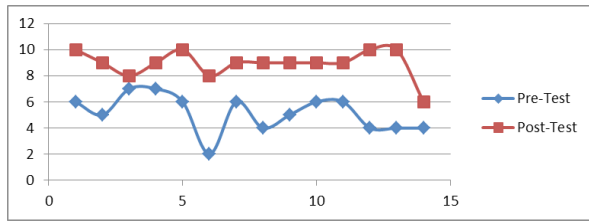


Figure 4.
Comparison Pretest and Posttest Score

Analysis of Peer Review Form. The charts below are the responses of peer review of the teaching online implementation. The number of respondents was seven people. The peer review form used the form of Chang et al. (2005) which was composed of five dimensions: mastery of course knowledge (three items), clarity of the teaching contents (eight items), flexibility of teaching strategies (eights items), mastery of effective classroom management skills (five items), and good use of communication skills (six items). The explanation of each item is as follows:

Mastery of course knowledge. The graph has shown that 71% respondents felt excellent and 29 % of them felt satisfied for the items of mastery of course knowledge. This part of the item shown that the instructor was able to grasp the teaching material completely. Then the instructor was capable of linking the old and new knowledge of students effectively. Furthermore, the instructor was able to link the students' life experience.

Item 1. Mastery of course knowledge

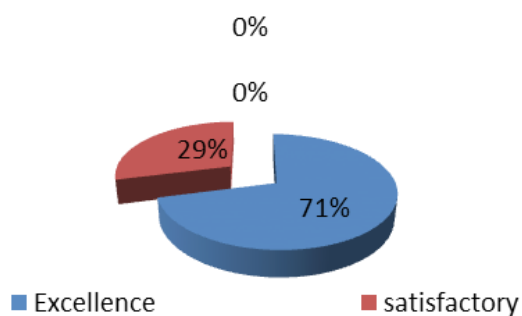


Figure 5.
Mastery of Content

Clarity of the teaching content. The graph has clearly shown that 73% of respondents felt excellent toward the skill of instruction to present the teaching clearly, 25% of them felt satisfied, and 0% of them felt unsatisfied, while 2% peer review responded for the item number 2.8. that mentioned about summarize the learning point, the instructor did not implement that point.

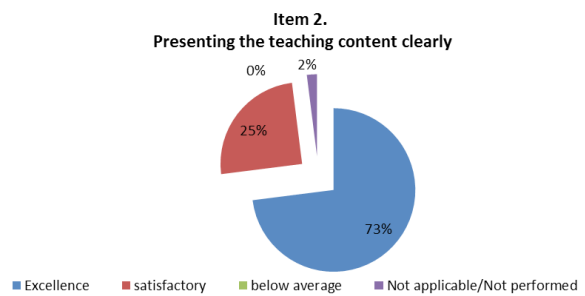


Figure 6.
Ability to present teaching content clearly

Flexibility usage of teaching strategies. The pie chart below has shown us that 58% of respondents considered that the teaching strategy was excellent in flexibility usage of teaching strategies. 32% of them felt satisfied while 1% of them felt unsatisfied, especially on item 3.1. which is about initiative and maintaining students' motivation. In addition, 9% of respondents considered that the instructor did not perform on item number 6.7 about the ability to implement remedial instruction according to students as individual.

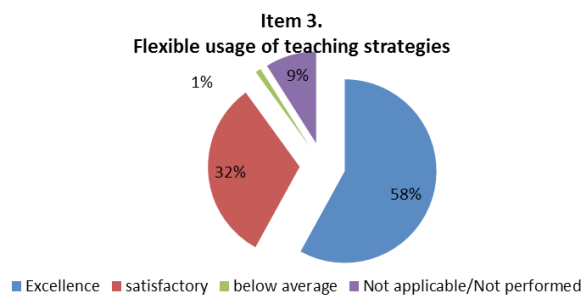


Figure 7.
Flexible usage of teaching strategies

Mastery Of Effective Classroom Management Skills. This graph has shown that 63% of respondents admitted that the instructor was excellent and able to manage classroom effectively, and 11% of them felt satisfied while 0% of them considered that the performance was below average and 26% of them recognized that the instructor did not implement item 4.1. about ability to keep classroom regulation, point 4.2. about proper use of rewards and punishments and item 4.5. about ability to handle students who misbehaved.

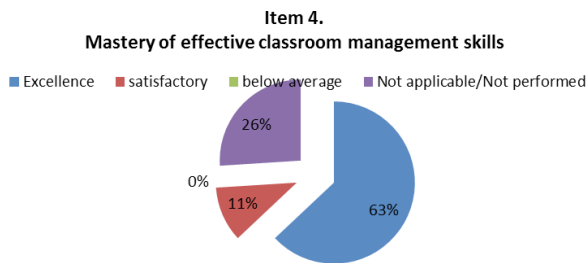


Figure 8. Mastery of Effective Classroom Management Skills

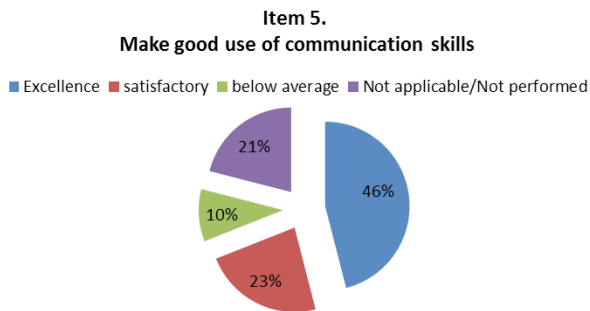


Figure 9. Make Good Use of Communication Skills

Good use of communication skills. The chart below has clearly shown that 46% of respondents acknowledged that the instructor was good at using the communication skills, and 23% of them felt satisfied while 10% of them admitted that the instructor used communication skill below average, particularly on item 5.5. about correct, neat and orderly hand writing. In addition, 21%

of them respondents considered that the instructor did not implement item 5.2. about taking care of majority students and walking around the class .

Conclusion

Teaching online was quite fun, and gave good experience for teacher and students. Both teacher and students were engaged to high technology and contemporary issues in teaching. Besides, the most important thing was that teaching online could be success and reach the instructional goal. Students demonstrated good performance in class.

In general, the praxis of instructional system design using teaching online was able to enhance students’ understanding of multicultural education. Referring to the result of pretest and posttest that revealed students’ understanding about the topic has improved from 5.142 mean of pretest to 8.928 mean of posttest.

In addition, feedback from students’ questionnaire showed that most of the students felt satisfied and interested in the topic. Something that I have to improve on this teaching online is maintaining two languages, bahasa Indonesia and English in my PPT, because this teaching in two countries should use two languages. Another thing to consider is technical preparation. I need to print out my PPT, so I did not face technical difficulties to see my PPT.

References

Albert, I., Trommsdorff, G., Mayer, B., & Schwarz, B. (2005). *Value of children in urban and rural Indonesia: Socio-demographic indicators, cultural aspects, and empirical findings.* 171-207.

Amalee, I. et al (2007). *Ensiklopedi bocah muslim.* Bandung: Mizan Dian Semesta.

Amirin, T.M. (2012). Implementasi pendekatan pendidikan multikultural kontekstual berbasis kearifan lokal di Indonesia *Jurnal pembangunan*

- pendidikan: *Fondasi dan aplikasi*, 16-1(1).
- Anyon, J. (1989). Social class and the hidden curriculum of work. In J.H. Ballantne (ed.). *School and society*. California: Mayfield Publishing Company
- Althusser, L. (1970). *Ideology and Ideological State Apparatuses*.
- Aly, A. (2005). *Pendidikan multikultural dalam tinjauan pedagogik. makalah "Seminar Pendidikan Multikultural sebagai seni mengelola keragaman*. Surakarta: Universitas Muhamadiyah Surakarta.
- Badan Pusat Statistik. (2013). *Berita resmi statistik No. 06/01/Th. XVI, 2 Januari 2013*.
- Banks, J. A., Banks, C. A.M. (2010). *Multicultural education, issues and perspectives*. Hoboken, USA: John Wiley and Sons, Inc
- Buwono X, S.H. (2008). *Merajut kembali keindonesiaan kita*. Jakarta: Gramedia.
- Chen, M. S., Horrocks, E. N., & Evans, R. D. (1998). Video versus lecture: Effective alternatives for orthodontic auxiliary training. *Journal of Orthodontics*, 25(3), 191-195.
- Covington, M.V. (1998). *The will to learn: A guide for motivating young people*. Edinburgh, United Kingdom: Cambridge University Press.
- Djaja, W. (2009). *Ki Hajar Dewantara*. Klaten: Cempaka Putih.
- Dick, W., Carey, L., and Carey, J.O. (2005). *The systematic design of instruction (6th edition)*. Boston: Pearson Allyn & Bacon.
- Eunjoo, L. (2001). *Evaluation the impact of joint activities involving special and elementary preservice teacher on their interactions and their belief, attitudes, roles expectations in inclusive education*. (Unpublished doctoral thesis). University of Illinois at Urbana-Champaign, USA.
- Gopinathan & Lee. (2013). *Reforming curriculum in Singapore and Hongkong Ch.13*. Singapore: Springer Science.
- Hall, S. (2014). *What is educational evaluation?*. Retrieved from: http://www.ehow.com/facts_5006257_what-educational-evaluation.html
- Hiltz, S. R., & Goldman, R. (2005). *Learning together online. Research on asynchronous learning networks*. London: Lawrence Erlbaum Associates.
- Kementrian Sekretariat Negara Republik Indonesia. (2013). *Geografi Indonesia*. Retrieved from: <http://indonesia.go.id>
- Kosasih, D. (n.d.). *Kakawih barudak sunda*. Bandung: Indonesia University of Education.
- Khisbiyah, Y. (2000). *Membuka masa depan anak-anak kita*. Yogyakarta: Kanisius
- Lesson plan (2014). Retrieved from: <http://www.Definitions.net/definition/lesson%20plan>
- Lesson Plan, (2014). Retrieved from: <http://www.bing.com/images/search?q=lesson+plan+definition&id=944AFB0D3AB09C44E01A44578DAB574D4A9F08AD&FORM=IQFRBA#view=detail&id=944AFB0D3AB09C44E01A44578DAB574D4A9F08AD&selectedIndex=0>
- Lubis, N. A. F. (2006). Multikulturalisme dalam politik: Sebuah pengantar diskusi. *Jurnal Antropologi Sosial Budaya Etnovis*, 1(1)
- Martin, B. L. & Briggs, L. J. (1986). *The affective and cognitive domain. Integration for instruction and research*. Englewood cliffs, New Jersey: Educational Technology.
- Maskur. (n.d.). *Filosofis model pendidikan budaya etnis sunda "Cageur, Bener, Pinter" sebagai pendidikan karakter bangsa yang ideal*.
- McPerson & Nunes, M. & Nunes, M. B. (2004). *Developing innovation in online learning*. London: RoutledgeFalmer.
- Miksic, J. (2002). *Indonesia heritage: Sejarah awal*. Jakarta: Grolier International.
- Morrison, G. R., & Lowther, D.L. (2005). *Integrating computer technology into the classroom (3rd edition)*. Columbus, Ohio: Pearson, Merrill Prentice Hall.

- O'Bannon, B. (2002a). *What are instructional objective ?*. Retrieved from: <http://edtech2.tennessee.edu/projects/bobannon/objectives.html>
- O'Bannon, B. (2002b). *Why should I care? Instructional objectives are key to effective instruction*. Retrieved from: <http://edtech2.tennessee.edu/projects/bobannon/objectives.html>
- Ornstein, A. C., Pajak, E. F., & Ornstein, S. B. (2007). *Contemporary issues in curriculum (4th ed.)*. Boston: Pearson.
- Rahim, R. (2012). Signifikansi pendidikan multikultural terhadap kelompok minoritas. *Jurnal Analisis*, 12(1).
- Sleeter, C. E. (1996). Multicultural education as social movement. In *multicultural education as social activism*. (pp.217-241). Albany: State University of New York Press.
- Suparlan, P. (2002). Menuju masyarakat Indonesia yang multikultural. *Jurnal Antropologi Indonesia* 69.
- Suryawati, C., (2005). Memahami kemiskinan secara multidimensi. *Jurnal JMPK*, 8(3).
- Syaifuddin, A.F. (2006). Membumikan multikulturalisme di Indonesia. *Jurnal Antropologi Sosial Budaya Etnovisi: II (1)*
- Tsuchiya, K. (1992). *Democracy and leadership; The rise of the Taman Siswa movement in Indonesia* (H.B. Jassin, Trans.). Jakarta: Balai Pustaka