The Use of Sibelius Software in Learning Counterpoint at Music Department of Indonesia Institute of the Arts Yogyakarta

Oriana Tio Parahita Nainggolan, Indonesia Institute of the Arts Yogyakarta, Indonesia

The Asian Conference on Technology in the Classroom 2017
Official Conference Proceedings

Abstract
As a subject for Music students, Counterpoint contributes to the ability to create a melody. Students must pay attention to the rules applied in counterpoint when they make a melody. It considers the flow of the melody in vertical and horizontal line (interval) and a musical texture of the melody. In making counterpoint melodies, students spent a lot of time to follow the rules of the interval, and they particularly do not pay attention to the musical texture of the melody, so it makes the melody lose its musical senses. This study will examine the use of Sibelius software in learning counterpoint at Music Department, Institut Seni Indonesia (ISI) Yogyakarta. An observation and interview were used to collect the data. The result of this study is that by using the Sibelius software, the work of making counterpoint melody would be said more efficient, and it also gives an opportunity to the students to consider a musical texture of counterpoint melody after working with the rules of counterpoint. The conclusion can also be drawn that by using the Sibelius software, students still have a lot of time to practice in making the counterpoint melody so that they become more skillful in making the counterpoint melody.

Keywords: Counterpoint, Melody, Sibelius Software

Background

In the western classical music tradition, music theory concerning about the construction and combination of melodies. There are two similar subjects that deal with the construction and combination of melodies: Harmony and Counterpoint. Harmony concerns with the construction and combination of melodies on the vertical line (chord), while Counterpoint focusing on the horizontal line (melodic contour). It seems that the vertical and horizontal are a separate parts of the subject, however, both of them are needed as a consideration in making a musical texture of melodies.

The term of Counterpoint is derived from Latin "punctus contra punctum" or "note against note". The emphasis word from the word "note against note" is on the word "against". Contrapuntal lines (contrapuntal melodies) are played or sung against, not with, each other, so that the resulting sounds like a 'conflict'. Of course, the conflict is not in the violent sense. It is more nearly that two or more lines, with each characteristic, functioning simultaneously with a common artistic purpose moving together (Norden, 1969).

There are three materials employed in contrapuntal construction, those are: (1) The vertical movement; (2) The horizontal movement; and (3) Musical textures. The vertical movement refers to the movement between the upper and lower note (chord). The horizontal movement is the movement of the melodic line (melodic contour). Musical texture refers to the numbers of musical layers and how these layers related to each other. As mentioned above that contrapuntal melody consists of two or more melodies, the musical texture is an important consideration to keep all musical layers connected to each other.

Counterpoint is one of the compulsory subjects that must be taken by students in the Music Department of ISI Yogyakarta. This subject is being taught in two consecutive semesters. The learning content of the first semester is focused on introductory of Counterpoint, the general rules of Counterpoint, and implementing the general rules in exercises. In the second semester, the learning content is emphasized on making two voices invention (two line contrapuntal melodies). In this semester, the students will practice making two voices invention starting from 8 bars up to 32 bars melody.

In Music Department of ISI Yogyakarta, Counterpoint subject is taught by lecturing and workshop method. The lecturer will explain about learning materials, and after that, the lecture will provide exercises to the students. The lecturer will guide and assist the students in doing exercises. These exercises are given to the students in order to gain the skills in making contrapuntal melody. Students do the exercises manually by writing the contrapuntal melody on a piece of stave paper. They construct a new melody according to the three materials employed in contrapuntal construction, try to listen to the melody, evaluate the melody, and making a correction if there is an error.

In the earlier observation that was conducted by the teacher (who also as research) found that there are several obstacles in learning Counterpoint especially in the second semester, which emphasized on making two voices invention. Here are the

obstacles: (1) Students write their melody manually on pieces of paper, and based on the previous description this process takes a lot of time; (2) In order to get more skillful in making contrapuntal melody, students should spare their time in doing a variety of exercises. So, it is very important allotting the time in learning Counterpoint, the more exercises you do, the more skill you will get; (3) Based on the evaluation of the students' works it was found that most of them loses their musical textures, whereas it is important to consider so that the contrapuntal melody does not lose their musical sense, since contrapuntal melody is a music.

As an offer to solve the problems, the teacher gives a solution by using the Sibelius software in learning Counterpoint. Sibelius software is a score writer program. It is used by composers, arrangers, performers, music publishers, teachers, and students, particularly for writing classical, jazz, band, vocal, films and television music. Besides that, Sibelius can also play back the music while writing the music. The features involved in Sibelius software will help the students to solve their problems in learning Counterpoint, especially in making two voices invention.
According to the previous description, this paper will examine how to use Sibelius software in learning Counterpoint at Music Department of ISI Yogyakarta and how Sibelius software can shorten the duration in making two voices invention and can improve the student's ability in making two voices invention.

Theoretical reviews

Technology in globalization era is an integral part of human's life. It is true because globalization concept emerges from the development of technology. According to Rahim (2005) globalization is an ideology of cultural, social, and political changing that emerges from the development of information and communication technology (ICT). The concept of globalization is the world without border, information liberation, global learning concept, cultural changing concept, and so on. These concepts bring a massive change in everyday's life of a human.

The concept of globalization in education is learning without border (global learning concept), this means that student could learn everywhere not only in a classroom or they can still learn in a classroom and use technology which helps them in learning. Learning is a process of interaction between educators, learners and learning resources in a learning environment. In the global era, learning should be defined as a process of interaction between educators, students, and technology. Although in a global era we can't separate technology from in learning situation, not all of technology can be used in learning. The technology can be used in learning in a global era is ICT.

According to Riyana (2008), There are three main functions of ICT in learning: (1) as a tools, it means ICT is a tool for students to help learning such as process data, work with numbers, make the elements graphics, create a database, and so on; (2) as a knowledge, it means that ICT as part of the disciplines to be mastered by students; and (3) as material and learning tools (literacy), it means the technology is defined as learning materials as well as tools for computer-aided control of a competency.

Aside from being a tool, ICT can also be used as a learning media for a student. The term of media can be defined as a conveyer or a mediator. According to Sudjana (1991) in the learning process, the functions of media are: (1) as a tool to achieve effective teaching and learning situations; (2) learning media is an integral part of the overall teaching situation. This means that the learning media being one of the elements in learning that should be developed by educators; (3) learning media also being an integral to the purpose and content of teaching; (4) the use of learning media not merely as entertainment tools in the learning process in order to get attention from students; (5) learning media used to accelerate the learning process and help students in capturing the information given by the educators; and (6) priority the use of media in learning is to enhance the quality of learning and teaching.

Educational technology emphasizes the learning aspects of learners. The main success factor of an education is to emphasize how students can learn to identify, develop, organize, and use all kinds of learning resources. Seeing the success factors that have been described, the problem solving is with the use of educational technology through utilizing learning resources.

To use the learning resources, the ICT should be done by considering a few things such as (1) the purpose of learning, ie appropriateness of the characteristics of learning objectives with the characteristics of learning media will be achieved; (2) effectiveness to determine the most effective media to deliver the content of the subject; (3) the accuracy, which chosen learning media appropriate to the characteristics and abilities of learners (4) availability, the media should be readily available or easy in the procurement; (5) the technical quality has been tested with good results; (6) cost of acquisition. The acquisition costs should fit between the costs incurred with the benefits to be obtained; (7) the flexibility and convenience of the media. The choosing media should give the flexibility, hence the technology can be used in any situations and when not in use it is not harmful; (8) the ability to use the media, of course, no matter how high utility the value media is, it will not provide many benefits for people who are unable to use it.

The importance of using technology as a medium of learning in learning counterpoint in the Music Department of ISI Yogyakarta is based on the opinion of Webster (2001) which states that: "Regardless of one view of the centrality of technology as part of music experience, there is no denying that children today do not know the world without computers, electronic keyboards, MP3 files and players, Compact Discs, the internet and other digital devices ". A similar opinion was also expressed by Muro (1996) which states that the computer is an ideal teaching tool in teaching music, mainly by using computer software that is user adjustable to the learning objectives.

It has been mentioned in previous paragraphs that in general learning media serves as a mediator or regulator messages device in learning activities which provide stimulus to the students to understand the material presented by teachers, from abstract concepts into the image of a more concrete, so the student’s attitude and behavior will develop. The changes obtained after students have gained the knowledge and new experiences. The use of computer media with Sibelius software applications in learning counterpoint will help students to acquire new knowledge and experiences

through the material presented by teachers than if teachers do by way of lectures/verbal approach.

There are two theories that are used as a framework for this study: Cognitive Theory (Brunner) and The Cone Experience Theory (Edgar Dale). Brunner's cognitive theory states that a person's cognitive development occurs in three stages defined by the way he viewed the environment, such as: (1) Direct experience phase (eractive), an individual stage to understand the environment by doing activities; (2) Pictorial phase (ekonit), an individual stage to see the world through pictures and verbal visualization, such as drawings, paintings, photographs and others; (3) Symbolic stage, is the stage where people have abstract ideas strongly influenced the language and logic of thinking.

The theory which also supports the use of technology in learning is a theory cone of experiences. Dale (1946) classified learning experiences ranging from concrete things up on things that are considered abstract. The classification of experiences is called by the cone of experience. In this theory, the learning success is measured by the level of students' learning experiences gained in learning depends on the treatment. This theory consists of 12 classification learning media which is often used instructional: (1) Direct experience and aims. This experience gained by the student when dealing directly with the objects, events, or the actual object; (2) Experience imitation. This experience obtained by students through objects or events that actually imitations; (3) Experience through dramatization. The experience gained in the form of various movements of drama that performed on stage and in the open air; (4) Demonstration. The experience gained through the examples or the show of a process; (5) the experience through field trips. The experience gained by getting students to the outside object of the classroom with the intent of enriching and expanding students' experience; (6) the experience through the exhibition. The experience gained through performing the work of students; (7) the experience through television. The experience gained through the educational program that aired on television; (8) Experience through live images or movies; (9) the experience over the radio. The experience gained through radio broadcasts in the form of lectures, interviews, skits, and so on; (10) the experience through pictures. The experience gained from everything that is manifested visually in the form of two-dimensional as an outpouring of feelings and thoughts; (11) the experience through visual symbol. The experience gained through visual symbols; and (12) Experience with the symbol of the word. It is gained from books and reading materials.

The basis of the experience of this cone is to measure the level of abstraction for the reception of learning content or messages using direct experience, in line with the increasingly consolidated these conceptions, the function of learning media not only as a tools, but also as a conveyor of information or a learning message to students which will solve the barriers in communication, physical limitations in the classroom, students' passivity and also unify their observations.

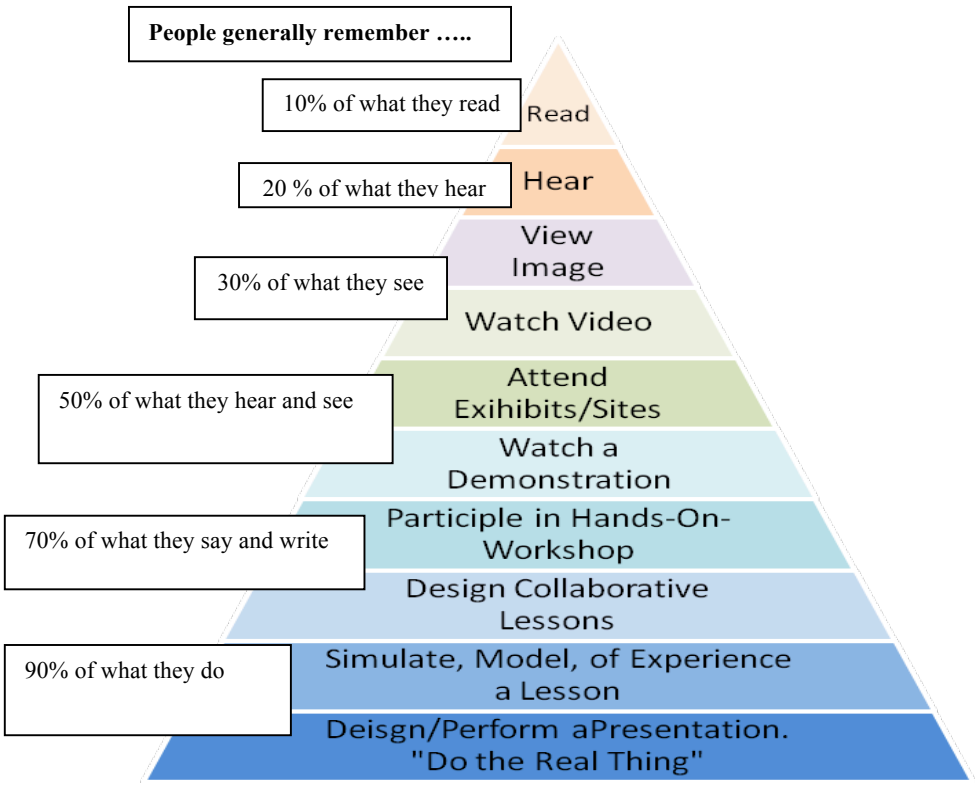

Figure 1: Cone of Experiences

From the picture of cone experience above, it can be explained that the treatment in learning will affect the learning experience, the more abstract treatment of learning for instance with lectures that use symbols, learn to read, then the learning experience gained is not too significant, otherwise increasingly using the medium that directed the real activities (performance) then the learning experience will be gained to the maximum. Learning media have an important role in improving the information that we remember which is 70% compared to the rehabilitated and reconstructed by the lecture method of learning by 20%.

Result And Discussion

This study is classroom action research (CAR). CAR is a research done to overcome the problems in the classroom. It is done with the aim to improve the quality of learning effectively (Sukanti, 2008). CAR is used as a way to describe the use of Sibelius software in learning Counterpoint in Music Department of ISI Yogyakarta with the aim to improve the quality of learning and also to solve the student's problem in learning Counterpoint. It is expected that the use of Sibelius software in learning counterpoint will make learning more effective.

The CAR is the development of action research. There are four steps in CAR: plan, act, observe and reflect. These are the simple model of the cyclical nature of typical action research (Kemmis and Mc Taggart, 1988).

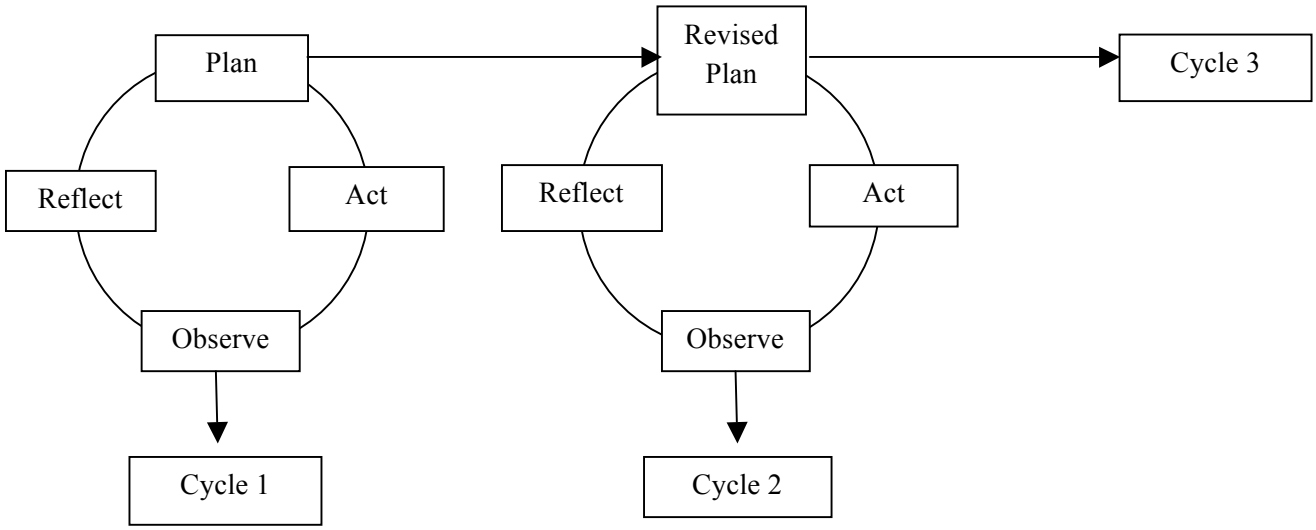

Figure 2: Action Research Model

In giving the elaboration of the simple action research model, Suswam (1983) distinguishes five stages in conducting each research cycle: (1) diagnosis the problem; (2) action planning; (3) taking action; (4) evaluating; and (5) specifying learning.

Figure 3: Action Research Process

In accordance with the cyclical nature of action research, this research was conducted in several phases: (1) Planning. In this stage, the researcher identified the problem in learning Counterpoint at Music Department of ISI Yogyakarta in making two voices invention. There are three problems that found in learning Counterpoint: students spent a lot of time in doing two voices invention by writing on a paper, students did not have enough time doing a variety of exercises, and most of the student did not pay attention to the musical texture of their work. To solve the student's problem in

learning Counterpoint, the researcher took a literature study, reviewing the literature which has the similar topic with this research and designing learning scenario. The learning scenario is to use Sibelius software when making two part inventions; (2) Action. Action means here is a corrective action. Every meeting, the researcher gave the students exercises in making two part inventions. Students did their work on their own laptop with using Sibelius software. The exercises start from 8 bars up to 32 bars length. The researcher assisted the students while they were working on two part inventions; (3) Observe. The observation took when students did their work and the result of their work. Besides that, researcher did the interview with the student. The assessment of student's work was based on how they constructed and combined the vertical and horizontal line with musical texture consideration; (4) Reflection. There are some aspects that we need to consider in order to get the reflection such as analyzing, interpretation and evaluating the research data. After doing observation, the researcher analyzed, interpreted, and evaluated the work of students whether the use of Sibelius software in learning Counterpoint at Music Department of ISI Yogyakarta is successful or not. At this point, if the use of Sibelius software in learning Counterpoint does not work, the problem is re-assessed and the process begins in another cycle. This process continues until the problem is resolved.

The data that were gathered during this study show how to use Sibelius software in learning Counterpoint at Music Department of ISI Yogyakarta and how Sibelius software can shorten the duration in making two voices invention and can improve the student's ability in making two voices invention. The results of this study are shown below:

A. Using Sibelius software in Learning Counterpoint

In learning Counterpoint, with the use Sibelius software student should prepare their own equipment such as laptop and earphone. The student did their work on Sibelius software. They wrote two voices invention on Sibelius. While their work, they can listen to the melody that they made. Of course, they need to pay attention to the construction and combination of a vertical, horizontal and musical texture of the melody. The student can also make a correction easily to the melody that they made if the construction and the combination not required to the basic rules of Counterpoint. This process continues until they have a good construction and combination of the two layers of melody. After they were finished, they sent their work to the researcher in two type of file by email: in the midi file (audio) and the music score (or any relevant graphic file type). The researcher evaluated and gave comments on their work.

Using Sibelius software in learning Counterpoint in Music Department of ISI Yogyakarta is a way to use the technology in a classroom. This is a shifting from manual score writing to digital score writing. Sibelius software is learning media and when working with it, students got real activities which involving their sight and hearing senses. According to Dale's theory, the use of learning media will improve 70% information that we remember. It is meant by using Sibelius software students absorbed the information in learning much more than without Sibelius software.

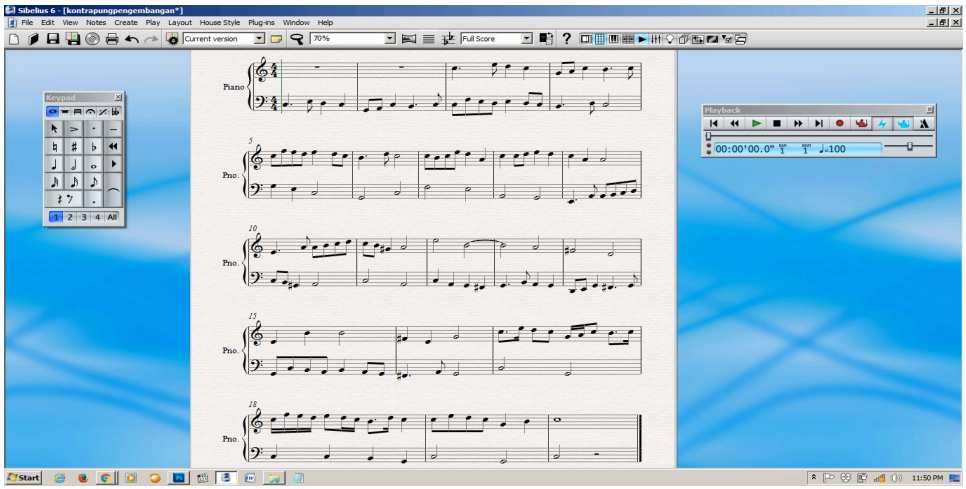

Figure 4: Work sheet of student in making two voices inventions on Sibelius software

B. Sibelius can shorten the duration in making two voices invention and improving student's ability in making two voices invention

Using Sibelius software in learning Counterpoint is proved can shorten the duration in making two voices. Based on the interview, students said when they were writing on a paper they hardly to listen to the melody, they cannot sing the melody by their own voice since there were two melodic lines in two voices inventions, so it took a longer time in order to make a good two voices invention. But, by using Sibelius software, students said that it is very helpful for them because they could hear the actual sounds of their melody while they were worked.

They students also said that they had an opportunity to do some more exercises in order to get more skillful in making two voices invention. By using Sibelius software students can do more two-part inventions exercises because they were doing the exercises easily and in short duration time. Doing more some exercises full equip students with the skill in making two voices invention, so they can improve their ability and get fluent making two voices invention.

The result shows that using Sibelius software in learning Counterpoint brings the advantages for the students. The problems that found by the researcher in learning Counterpoint at Music Department of ISI Yogyakarta also solved by using Sibelius software. As a learning media, Sibelius software should be interpreted as a way to solve the problem in learning and brings efficiency and effectiveness.

Conclusion

Using Sibelius software in learning Counterpoint at Music Department of ISI Yogyakarta is done successfully. It gave the advantages for students in doing two voices invention and also a problem-solving in learning Counterpoint. Sibelius software also makes learning Counterpoint become more efficient and effective. The improvement of student's ability in making two voices inventions is the significant result of this research, and it makes the goal of the Counterpoint's course content achieved, that is students can make two voices inventions.

References

Abd. Rahim Abd. Rashid. 2005. *Profesionalisme Keguruan Prospek dan Cabaran*. Kuala Lumpur: Dewa Bahasa dan Pustaka.

Dale, D. 1946. *Audio-Visual Methods in Teaching*. New York: Dryden Press.
Kemmis, S., McTaggart, R. 1988. *The Action research Reader*. 3rd Edition. Victoria: Deakin University Press.

Muro, D. 1996. "On behalf of Humanity" in the technological edge. *The World & I*. March, 1996., p.301-313.

Norden, Hugo. 1969. *Fundamental Counterpoint*. Boston: Crescendo Publishing Company.

Riyana, C., & Pengantar, A. 2008. *Peranan Teknologi Dalam Pembelajaran*. Jakarta: Universitas Indonesia.

Sudjana, N. 1991. *Media Pengajaran*. Bandung: Sinar Baru.

Sukanti. 2008. *Meningkatkan Kompetensi Guru Melalui Pelaksanaan Penelitian TIndakan Kelas*. Jurnal Pendidikan Akutansi Indonesia. Vol. VI. No. 1 Tahun 2008.

Susman, G. I. 1983. "Action Research: A Socio Technical Systems Perspective". Ed. G. Morgan. Sage Publications. Tahun 1983., p.95-113.

Webster, P.R. 2001. *Computer-based technology and music Teaching and Learning*. New York: Schirmer Books.

Contact email: orianatioparahitangl@gmail.com