THE COMPUTER AS THE COMPOSER'S ELIXIR

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Abstract
The music composer like other people involved in different areas of human creativity, experiences what may be referred to as 'work-stress'. This stress is revealed when one takes a cursory look at music history. A study of the methods employed by past composers buttresses the fact that in order to capture a musical idea, the composer had to scribble on paper using available materials which included ink and bird's feather. A few of them had to tear up their manuscripts a couple of times as an expression of dissatisfaction and in an attempt to rewrite their works. Studies also revealed that moonlight was used as a source of power at night to provide the needed light for the composer. The effort at writing and rewriting musical notes coupled with poor lighting could only be viewed as a composer's nightmare. The absence of a friendly environment and the use of crude materials severely hampered the musical output of composers. In contrast, the innovation and advancement of computer technology coupled with the development of music software in the past few years has impacted positively to bring relief to the work of music composers. As a result, the computer has been described as a wonderful device which has proved to be of great assistance to the composer. This paper sees the computer as the composer's elixir, which has not only afforded the composer a veritable tool for prolific output but has also become a valuable storage facility protected from the damaging effects of rodents and rats. The computer barring further innovative technological advancement has become a sine-qua-non to the modern day music composer who has to willy-nilly get acquainted with it.
Keywords: computer, composer, work-stress and elixir.

Every area of human Endeavour has its related work-stress. The situation in music is not different. The music composer has his own experience. These stress areas which must have been glossed over as part of the music environment by music composers partly because they knew nothing about any alternative, have become quite conspicuous with the recent advent of computer technology (1822.search.yahoo.com). It is now obvious that music composition and composers had a lot of issues they contended with in the past. Based on experience, these issues ranged from lack of electricity, absence of the manuscript book, music software such as Finale and Sibelius, restricted access to musical instruments like the piano keyboard and most importantly quick capturing of musical ideas.

Compared to as recent as 50 years ago in Nigeria, life today has been made a lot easier. One may have difficulty visualizing a composer's life without what is referred to today as 'the basic necessities of life'. These basics include good roads, electric power, pipe-born water, musical instruments and cutting-edge technology. The stress of capturing musical ideas and subsequently composing the music manually with feather dipped in ink and paper can only be imagined. The composers of the past referred to today as 'great composers' went through difficulties just to get their ideas concretized. That they are called great composers is in consideration of the volume and complexity of the work they produced even with all the stress. Discussing one of the great composers, Kennedy (2010) said that "[Beethoven's] sketchbooks show how he laboriously developed an idea from sometimes banal beginnings to the final version," a journey in what could be aptly referred to as 'musical wilderness'. As a composer, there is no gain saying the fact that any idea resulting from inspiration must be captured quickly otherwise it could fade away. The ink droppings which ultimately distorted the composition must have been nightmarish, making the capture of musical ideas difficult.

The movement from feather and ink to computer technology was not direct. Of note therefore are the introduction of the pen (2000 BC) and later the pencil (1795) and a specialized music notebook called the music manuscript (1400BC) which helped to ease composition in music. With the many staffs contained in music manuscript books, the stress of ruling lines which turned out to be crooked sometimes was eliminated.

The process of painstakingly writing every single note manually on staff has never been an easy one. Among other things, it was always time-consuming and slowed the process of production. All these however resulted in the easing of the process of composition and can be referred to as the precursor of the computer age. With the computer, all the steps identified above are practically glossed over leading to the quick capture of musical ideas and increased production of musical compositions: the essence of this paper. In line with this trend of thought, Stephen Thornely (2012) holds that the computer assists the composer in capturing original ideas. The fact that the computer do not only enhance the composer's ability to perform tasks that require mental activity but actually often accomplish this much faster and more accurately made Parsons (1998) to refer to it as a 'mind tool'. This statement buttresses the position that the introduction of computer technology has been beneficial and looks set to continue to be of immense benefit to the music composers of today and tomorrow.

Charles Babbage, a famed mathematician is credited with inventing the very first computer in 1838. According to search.yahoo.com, he developed a mechanical calculator that had a simple storage mechanism and called it the Difference Engine. Thriftbooks.com described this engine as the Analytical Engine. Since then, the development of the computer has gone through many stages starting from when it was nearly as big as a house to what we have now where the computer has been made so small that it can be carried around by an individual and is known as personal computer, PC for short. According to the yahoo search machine, the true first, complete computer is the 'Z1', created by Konrad Zuse in his parent's living room in 1935. It is acknowledged as the first electro-mechanical programmable binary computer. In addition, the very popular HP computer is said to be the effort of David Packard and Bill Hewlett in 1939. According to Computer History Museum, this development happened in a garage in a Palo Alto, California.

These historical highlights give us a fair idea of the evolution of the present day computer, such that The Longman Dictionary of Contemporary English (2000.274), describes a computer is "an electronic machine that can store information and do things with it according to a set of instructions called a PROGRAM." Parsons (1998) describes a computer as a device that accepts input, processes data, stores data and produces output. It is this very fact that the computer can be controlled by a set of instructions that scientists capitalized upon to produce the program that runs the music soft-ware. The music software can be used among other things, to compose and arrange music. As a result of this development, the computer laptop can actually be described as a moving music studio.

The Composer

Generally the composer is understood to be someone who composes. This understanding is broad based in the sense that what is composed covers a wide variety of learning. For example, in English Language, one can compose an essay. In English literature, one can compose a poem. To compose means to put together and anything can be put together. Therefore there is the need to narrow its understanding down to music.

The New Oxford American Dictionary describes a composer as a person who writes music, especially as a professional occupation. Also, the Longman Dictionary of Contemporary English (2000.272), defines a composer as someone who writes music. However, these definitions are not only simplistic but can also be misleading as there are different aspects to writing music and not all is composition. Writing on the composer, Hurd (1968:9) had this to say: 'The composer is a man who can express himself in terms of music. To him, music is an expression, a language with rules of its own and its own inner logic. It is not however the kind of language that can express ordinary everyday matters'. Focusing on how the composer does his work in the West, Randel (2001:183) had this to say,

> As a result of the importance attached in the West to the figure of the composer, considerable study has been devoted to the compositional process – the means or at least the order of events by which a composer produces what is regarded as the finished work. This has entailed principally the study of sketches.

The question could be, who produced those sketches and what or who did they study to produce the sketches?

In his contribution, Konigsberg, an avant-garde composer of computer music, described composers as 'people who begin with a theme in their imagination, then work with pen and paper to produce notation that will be performed later in a realization of their original conception' http://www.princeton.edu. In the light of the topic of the paper and present day technological development, the definition by Konigsberg can be considered relevant especially if the 'pen and paper' is replaced with 'available tools'. This definition clearly points to the fact that a composer must have some musical skills at his or her disposal and deploys this skill to appropriate use when he or she conceives of an idea. The Binis (located in Edo State, Nigeria) have a parable that states as follows: '*Erhan no de vbe 'ghomwan, a raya koko'*. The literal meaning is that it is the wood that fell in one's time that is used for cooking'. What this implies is that it is the available material at the disposal of a worker that will be used for work. Today, the music composer can access the computer with its high utility.

A composer can be likened to a musical architect as opposed to a draftsman. The work of a draftsman is to put down the idea of another person. The musical architect has the training or measured ability to originate an idea, nurture the idea from infancy to maturity, gather the necessary materials especially the computer for its concretization and finally package it in such a way that it can be accessed by music literates.

An Elixir

The Longman Dictionary of Contemporary English (P.446: 2000) defines elixir as "something that is supposed to solve problems as if by magic." One may consider this definition alluding to magic as a phenomenon that defies logical explanation. The use of 'elixir' here is in recognition of the ease with which compositional problems are solved (as if by magic) using the modern day computer. Approaching the issue from the computer angle, Elixir-lang.org explains elixir as a dynamic, functional language for building scalable and maintainable applications. Wikipedia sees elixir as a functional concurrent, general-purpose programming language that runs on the BEAM virtual machine used to implement the Eriang programming language. This approach to the meaning of elixir is more in consonance with the stand of the writer.

Manual Composition and Associated Challenges

Associated challenges refer to issues like time and access to music score, the stress of composing and risk to health as well as the nitty-gritty of composition itself. These stress areas that challenges the music composer are like road blocks and surmounting them greatly relieves the process of composition.

Time and Access to Music Score

In '*Basic Music Studies Book A'* by Akioya (2006, 130), Catherine Gough (1968) aptly illustrates this point.

> Christopher (J.S. Bach's elder brother) had a precious book of music by all the best composers of music living at that time. Sebastian longed to borrow this so that he could play through all the pieces. But however much he pleaded, Christopher always said 'No'...He (Sebastian) knew the book was in a cupboard with a wire mesh front. By putting his hand through one of the holes and rolling up the book, Sebastian found he could pull it out! The only time he dared do this was at night when Christopher was asleep. But at that hour he could not play the pieces, or he would wake the house. So he had to copy them out by night and play them secretly by day. As there was no electric light in those days, people had to read and write after dark by candlelight. But Christopher did not allow Sebastian any candles. He had to write out the music by moonlight instead. The moon only shone brightly enough for a few days each month, so that altogether it took him six whole months before every piece was copied down.(p,?)

One can best imagine the amount of effort involved, the time wasted on copying as well as the work with moonlight. All of these have been addressed by the introduction of the computer. In addition, access to music scores has been facilitated by the introduction of printing which has resulted in the mass production of music copies using durable materials.

The Stress of Composing and Health

One by-product of using moonlight (a poor lighting system) while working on music composition is undoubtedly the blindness that afflicted some of them later in life. Famous classical music composers who went blind later in life include Johann Sebastian Bach (1685-1750) and George Frederick Handel (1685-1759). A composer is a human creator who finds the use of eyes almost indispensable. His work of composition is greatly enhanced by the presence of eyes. Those who unfortunately lost the use their eyes have had to depend on the acute capability of their ears.

Medically, the use of poor reading light is ill-advisable and is discouraged. Health, according to the World Health Organization, is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. From this we therefore understand that poor eye sight is indicative of health deficiency. Today, advances in technology have led to the provision of a very conducive atmosphere for composers in terms of good lighting system. This is in the form of the computer and its accessories like the music soft-wares. At this point, one need to understand what is really involved in the process of composing music.

Music Composition

The composer is somebody who takes what is available in his environment; put them together in a novel way to produce something which is quite unique and different from the individual elements in order to express his inner thoughts. This means that a composition must of necessity be preceded by inner thoughts and vision. Encarta Encyclopedia (1992 – 2002:4) said:

> Innovation as a criterion for good composing is important in Western culture, less in certain other societies. In Western music, composition is normally carried out with the help of notation; but in most popular music, and particularly in folk, tribal, and most non-Western culture, composition is done in the mind of the composer, who may sing or use an instrument as an aid, and is transmitted orally and memorized.

This situation may have been very true in the time past. However, there is evidence that the situation is being greatly challenged and punctured by the number of educated music graduates and practitioners who have taken a cue from the Western world in terms of notating music. The position of this paper is that the computer has come to provide great relief in the realization of this objective.

To concretize his thoughts, a music composer should know enough to put these elements together in a meaningful way. What are these elements? The music elements can be quite comprehensive and include the following: notes, rests, staff, clef, time signatures, key signatures, bars and bar-lines and dynamics. These elements can all be found in music soft-ware like Sibelius and Finale. It is a matter of fact that these elements which are in the music soft-ware are in the public domain that is this information may not be new to everybody but a lot depends on the composer's ability to access these elements. This means that the composer who intends to use the computer for his composition must have the knowledge of how to use these basic music concepts as well as computer knowledge. The emphasis here is not on the presence of these elements but on the ability of the composer to access and put them to use. Acquiring computer knowledge needs focus and can actually be expensive. However, the end result of such knowledge far outweighs the cost of acquisition.

Palmer (1958) in his book titled '*Teach Yourself to Compose Music'* explained the composer's art as consisting of putting musical sounds together in such a way that the result is a complete and well-balanced piece of music. Palmer envisages that the music composer should have the right kind of knowledge and skills to be able to put musical sounds together in a balanced output.

The Computer as the Composer's Elixir

Before the advent of the computer, the music composer had a lot to contend with. Every step of the way involved in composition was laborious. He needed a lot of papers to work with as most of the writings were usually and eventually discarded with as improvements were made. In some of the cases, the writings were almost illegible. According to Schubert, a composer who churned out more than 600 songs, composing for him was not quite as easy as people thought. Why would he say that? It is because although the tunes came to him quite easily, putting them down was quite an arduous task. This was done manually and qualified to be termed a composer's nightmare. This is comparable to the way that some teachers view teaching and marking of students' scripts. Teaching is one thing but marking of scripts can be quite cumbersome.

Music software contains all that the composer needs to compose. This fact is of immense benefit to the music composer as all he needs or rather knows are available in the soft-ware. Once he is able to access this information, everything seems to literarily be at his fingertips. This makes composition easier and faster.

The computer is a veritable storing facility. Associated with the manual way of composition, the paper works were subject to damage by rodents and rats. The loss of such manually produced work could be quite frustrating as the process of acquisition is laborious. The storage capability of the computer as embodied in its hard drive makes it even more valuable. Although the computer is not immune from damage, its storage facility is however capable of easy duplication. Even as a storage facility, the computer also has the capability to transfer the materials to other storage facilities like the Flash and the Compact Disc.

The computer can surely be called the composer's assistant. Depending on the soft-ware that has been installed, the computer may not only correct spelling errors but can also guide the composer on the distribution of notes in bars and in accordance with the time signature. By doing this, the computer helps the composer to avoid mistakes.

The computer eliminates the idiosyncrasies of composers' handwriting that makes the work difficult to read. In the fervor of composing sired by an inspiration, the composer could end up writing nonsense instead of sense by putting notes meant for the lines in spaces and vice versa. With the computer, the composer is able to access quite easily what he has done and so make amends where necessary. The provision of 'playback' in the software makes it easy for the composer to access his work even as he progresses.

Hitherto in the era of manual composition, the work of the composer could be hampered by the seizure of power that provides light. This power failure happened in the course of writing this paper work. Not only will the composer not see what he is doing but also the work is unnecessarily delayed and there could loss of output especially if some of the materials had not been saved. This could lead to a disconnection with the originating idea that led to the composition. In the light of this, the computer laptop can be described as the epitome of convenience because of the rechargeable battery – no lights out or sudden disruption to the composer's effort. What an Eldorado!

The computer laptop is portable and extremely usable anywhere. The very user-friendly size of the computer laptop makes it indispensable to the composer. The composer is not restricted to a particular place before he can carry on with the art of composition. In the same vein, the composer is not also restricted to a particular time in order to be able to continue with the art of composition. As long as he has his laps and the battery is charged, the composer can do his work at anytime and anywhere.

In conclusion, there is obviously a symbiotic relationship between advances in technology and the practice of music composition. This is interesting when one realizes that music as a discipline actually grew out of the practice of science and mathematics. This paper has been able to establish the fact that the computer especially the computer laptop can be of immense benefit to the music composer. However, in order to facilitate his work of composing, the music composer has to consciously acquire

the knowledge of the use of the computer. This is a purely scientific activity. Music as viewed today is in the realm of Arts. The use of the computer by the music composer in his art of composition is a clear testimony of how modern technology can be applied to solve problems in the arts.

It is therefore highly recommended that Departments of Music across our schools and higher institutions in Nigeria should as a matter of priority ensure that a unit that can take care of the acquisition of this scientific knowledge on the part of her teachers and students is established. A symbiotic relationship between the Department of Computer Studies and Music should be encouraged. Music students can be made to take a mandatory elective course in computer studies. Not every music composer is a teacher. Independent and free-lance music composers obviously stand to gain from deliberately acquiring knowledge of the use of the computer technology.

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