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**A NEW TRADITION FOR PIANO INSTRUCTION IN
CLASS TEACHER EDUCATION
A STUDY IN COMPUTER ENRICHED LEARNING
ENVIRONMENTS**

The important concepts of this "new tradition"

The learning environment

The computer enriched music learning environment

The principle of integrated piano lessons

The principle of progressive strategy of learning to learn

Learning environment is a physical place with its equipment arranged exclusively for learning. But there is more to it: also the psychological quality and atmosphere of the learning environment are crucial for learning to occur.

The new technology and the research on learning processes have been combined in the computer enriched music learning environment. By identifying the different elements in learning processes and in this way helping the process of learning has resulted in innovating new environments of learning. In the multimedia environment, auditory, visual and kinaesthetic ways to demonstrate a progressive music material are crucial in helping the learning of music.

The principle of integrated piano lessons.

The old tradition of music learning is that all the different branches of music study take place at different times, in different classes and are taught by different teachers perhaps without any connections to what is done by colleagues. In the integrated way of learning music, for example the theory (in traditional theory lessons the names of musical concepts are copied on paper and the actual learning of the concepts is often neglected), the solfege (a more modern way to learn music theory through singing, listening and also writing) and the actual playing of live music on an instrument are performed simultaneously. Through this way of learning it is also possible to learn accompaniment, get real understanding of the elements of music

and through that also to learn, for example, harmonizing, transcription, arrangement and so on, that is, skills that the musician actually needs. This is because all the learning happens in a way of learning where one learns understanding through live music, not only by speaking or not only by writing about it but by doing. Actually, during learning by doing, understanding develops through the application of what is learned on future problems. So, this way of learning is actually a way to learn by solving new and new problems in a progressive way. And also in teacher education, the integrative piano lesson is able to advance the whole musicianship.

The principle of progressive strategy of learning to learn means here a well planned continuity of the target of learning. It also refers to the appropriate way of working towards the goals of the learner and appropriate means to do that. First, the strategy of learning and then, all the means to help learning - as here the computer enriched learning environment- are crucial. In the end, the goal of the learner is to learn to think and through that to learn to learn and become independent in learning.

The important variables of the computer enriched learning environment

The Teacher

The teacher as man. The affective side

The professionalism of the teacher

The knowledge and learning conception of the teacher

The planning and realization skill of the teacher

All these aspects are important to a professional “coach” of learning, the teacher. What kind of a man or woman is the teacher? Is he a helping coach or a demanding boss? And what is the level of his or her actual professionalism? This concept is nowadays been divided into opposite points of view. The traditional expert has a big pile of papers of his /her deputy and he or she is riding on that deputy. The modern expert is constantly working on new problems and thus developing his or her skills and knowledge. His or her knowledge and learning concept is modern and continuously developing. He is aware of the newest results of research on learning and he is willing to try them out and then possibly use them. He is very skilful in planning and implementing instruction and also the whole environment of the learning. In addition, he is willing to change his views if

he finds something new and interesting. In one word, he is very curious, but at the same time, critical in a positive way.

The student

The student as man. The affective side

The starting level of the student. Knowledge and skills.

The knowledge and learning conception of a student

The same things that are crucial for the teacher are also crucial for the learner, but in addition, it is important to take into account the starting level of the learner. Many times the instruction goes far beyond the level of the student. Therefore, the basic work, that is, building the base, is crucial in learning, I think, especially in a subject like music. The task of the teacher is to take into account the skill and knowledge level of the student and also the conception of learning. But the instructor must not stick to this level but he must guide the learner to new levels also in the conceptions of learning.

The planning of and the realization of the instruction (=intervention)

The content of instruction

Organizing the learning as a continuum

The methods of instruction and the ways to work

The sociology of learning

The material the instructor is going to choose for learning should preferably be linked to the goals of learning but in a way that provides a challenge but not too much of a challenge. In the computer enriched learning environment the content of instruction is all the time available to the students and if organized along a continuum it will help the learner to advance in a progressive way and in this way the learner develops an understanding of the inner connections of musical structures and elements. A good teacher's repertoire consists of methods of clarifying things and ways of helping the students to learn to learn new things. The variables mentioned above are all included in high-quality traditional instruction. The next variable, the computer enriched learning environment, is the new element in a traditional learning environment.

The computer enriched learning environment.

The computerized learning environment provides equipment to make the target of learning clearer. It happens at different levels of knowledge presentation: at visual, auditory and kinaesthetic levels. The new equipment has many ways to illustrate the learning object, and thus it helps the processes of thinking and understanding. In this virtual environment we have infinite possibilities to bring different aspects of the reality into the eyes and ears of the learner and in this way make it easier to understand the reality.

Other intervening factors

The opinions of the students of what is going on. Attitudes and motivation

The quality and atmosphere of the learning environment. The chance to learn.

The teacher as a helper to learning to learn

The strategy of instruction

The students are in the middle of a very intensive and intentional learning process. They are all the time looking and listening and after that contemplating "what is that, is that it". And what is happening in the learning environment, this all is affecting the learner's opportunity to learn. One of the main ingredients in the opportunity to learn is motivation and the attitudes of the learners. In order to become a skilful and independent learner with good understanding of what is being learned, s/he frequently needs the help of an expert, that is, the teacher, not only to say what to do, but mainly how to do, to assure that real learning with understanding and ability to apply and to use the new knowledge would begin to develop. This is perhaps the main core of good strategy of instruction.

The learning process enriched by the computerized learning environment

The learning process

The strategies of learning

The intentional learning

Enriching the learning by new technology means mainly to take the new equipment to help to make clearer the things to be learned, to make clear and visible the learning process itself, in this way helping the learner to acquire new skills for thinking, understanding and learning. This is how the learner is then able to develop good strategies of learning for him- or herself and in this way make learning more intentional if needed.

Learning

The results

The reflection of a teacher and of a student

The changes

In a good learning process both, the instructor and the learners too are analyzing and reflecting the results. After the conclusions they are both ready to change some things if needed. In any case, the positive and critical way of thinking of the ingredients of the learning process, the learning environment, and in our case, the computer enriched learning environment is needed. The traditional way consisting of just teaching is changing as new results of learning are coming into open. The learning, how, where and who, is more critical, because no one can pour knowledge and skills into others.

Goals of the integrated piano instruction

Learning of the basic elements of music

Development of musical ear

Development of playing by ear/ without notes

Development of reading music

Development of musical memory

Development of the skill to outline the music (form)

Developing the skill to make music together

Developing the tools of creativity

Developing basis for playing an instrument

Development of the pedagogic thinking of music

Developing the skills of learning to learn

There are also other goals but the ones here are perhaps some of the most important. They provide us with the main goals of music learning. Music is

made and learned at different areas of music teaching, that is, singing, playing an instrument, listening to the music (briefly said the concepts of music at the lower level and the history of music at an advanced level) and ear training (or practical theory). What are we actually learning there? We are learning the structure of music itself (rhythm, melody, harmony and tone colour, the main elements of music) to get the understanding of music and so to be able to apply all the knowledge and skills and attitudes to do music on working with music. This is why one of the goals is called "the tools of creativity". It is difficult to teach creativity, but it is possible to teach the tools of creativity. Many times there is confusion within the concepts of creativity, where you always need very many of tools of creativity, that is, hard work, and the attitude of creativity. One can be very creative in his or her mind but in reality he or she only has the attitude, but no tools for that. The result is most often only a mess of different kind of actions where one uses the knowledge or skills he or she happens to have! In the progressive learning it is crucial to concentrate on the tools of the creativity, especially in art skills subjects.

If one learns to learn, good strategies for that, gets understanding for that kind of processes, is that not also a very important base for a good pedagogy.

Additionally, this kind of broad or integrated approach to the problem of learning can be more fruitful than the traditional one where different teachers who do not at all know what the other teachers are doing teach each area in different rooms. The learning would always have to aim at practice, to applying the knowledge and skills to music making itself. If the learner has a good understanding, he will be able to learn in both environments and others, but if the learners are not given the tools of creativity, the situation is problematic. This is the situation that the integrative, computer enriched learning environment with its strategies attempts to affect.

Carrying out of instruction

The basic course piano group instruction is given in skills-based small-groups

The main principle is to learn by doing and by experience

Learning is a progression. Songs are chosen to correspond and facilitate learning at each stage of the progression.

Learning is a synthesis - analysis - synthesis progression within a single song

The use of the tools of understanding for learning to learn

A broad combination of different ways of thinking about learning

At Turku University Department of Teacher Education, integrative piano is taught in groups, and more specifically in groups composed of students at different levels of proficiency. In the music computer class there are eight student places and one for the teacher. Learning happens through live songs in accordance with a progressive plan. The process of learning is a progression of synthesis (the song at hand), analysis (what is possible to learn through the song at hand: rhythm, melody, harmony and tone colour) and finally, synthesis (where one is able to practice the things in a sensible way, apply what has been learned for music making and for working with music and later perhaps to use what has been learned for creativity. The elements of music are themselves the tools for understanding and in this way also the tools of creativity. At the Department of Teacher Education in Turku University, music teaching applies different traditions or ways to learn music, such as the Hungarian Kodaly-system, the German Orff-system, the way jazz musicians learn and the ways we could call Finnish and finally, own ways of the local teachers. These traditions are then enriched by the new technology with its vast possibilities to help the learning processes.

The choice of songs for the progressive learning of music

Theory of music and the music textbooks used in the Finnish comprehensive school work as starting points: The progression of the songs does not involve a strict order but a logical continuum of learning. All the elements of music i.e. rhythm, melody, harmony and the tone colour guide the choice.

The learning process or synthesis - analysis - synthesis in a single song

A synthesis: learning begins from a live song.

In the analysis phase all the important things of rhythm, melody, harmony and tone colour in a single song are noticed and handled. The things of a key are of special importance. Because music is moving in time,

a musician has to consider in principle all the difficulties caused by time constraints in the control of the action when he is playing an instrument. Outlining of music (to have a good understanding to the music at hand), to be able to anticipate or/and beforehand hear the music inside one's head and also to remember everything; all this is of help in learning. The combination of technical and musical aspects help to outline the music: the principle of dealing with one problem at a time, not too many difficulties at a time – “a handful” (traditional finger numbers), that is, the technical performance of playing a song on the instruments. The conception “handful” means here the skill to outline whole musical phrases using one's hand, not only finger by finger. Phrase and chord progressions both mean the same principle. Many times the novice learner plays chords one by one and is not able too see and outline the musical progressions (cadenzas). They should learn to thinks this way.

A synthesis is a phase of first practicing the things to be learned in a single song, then applying them and perhaps later to be ready to use them in a creative way in music making.

The strategy of learning a song and from a song 1

Listening to a song

Singing the song

Having the song
“in the ear”

The song has to be pre-learned:

- by oneself
- with the teacher
- by means of computer software
- by means of music sheets
- e.g.. from a CD

Analysing the song and pre-practicing (singing and playing) the important musical elements of the song

Musical elements to be learned:

Rhythm	Melody	Harmony	Tone colour
DIFFERENT KEYS			
-rhythm figures	scales	chords	dynamics
-time signatures		Chord progressions	
-structures			
-tempo		and so on...	

The aim is to improve the musical knowledge, understanding and skills of the learners by analysing and doing (doing and analysing) the musical items in progressively developing live songs.

The training and application phase of learning

The strategy of learning a song and from a song 2

The way to learn different keys:

scales

- absolute and relative names
- sing and play (in tempo)

Chords and inversions of chords

- absolute and relative names
- major and minor scale chords and qualities
- Functions of the chord tones (1, 3, 5, 7 etc.)

Chord progressions

- for example I-IV-I-V7-I (I-IV-I-V7 or V7-I)
- A live song chord progressions: Applying level

After one has made the first phase with the song, the learner will have the next important task to work, which is to work with the key of the song. The progression to work with the keys is drawn from the tradition of how the jazz musicians practice keys to be able to be creative in music making. Scales should be always sung; both the relative and absolute way of thinking should be applied. With chords one should be as good as possible in using inversion, with different rhythms and figures, because this is the beginning of improvising. The chords would be begun with the triads of the key only,

next would come the first exceptional chords, bigger chords etc. according to the progression. The first song only would have the most common chord progressions, for example only using chords I, IV and V. In live song it is very important to pay attention to the rhythm of chords. The basic rhythm of the chords comes from the main principles of the time signature, the others are like exceptions. The musician must outline the rhythm of the music and so also the rhythm of the chords.

The strategy of learning a song and from a song 3 application level

Melody and rhythm: melody rhythm, melody tones (the tones of the key, tones not belonging to the key, melody ambitus, difficult things and the things helping one to learn the melody time signature and its meaning, the structures, tempo, and so on), all these things should be taken into account when analyzing the song. Practicing at different levels may mean for example solfege, tapping of rhythm, later playing in different keys and so on.

The chords: chords of the key, the modified chords, big chords etc. The chord progressions of the songs. The rhythm of the chords. Especially the chord progressions or structures. Practice at different levels.

Dynamics: Outlining the musical structures helps one also to understand the dynamic structure of a song.

Outlining the music as a whole is a target. Remember the aims of the integrated music learning.

Planning of the computer aided part of instruction 1

The planning of the computer enriched music instruction is made in the theoretical framework of general learning environment. Utilizing different tools and levels of the computer enriched environment of music learning for outlining and perceiving music is the goal in itself and therefore an important new medium of learning. The role of the teacher or expert is always the most important in assisting the development of the thinking of the learner.

Planning of the computer aided part of instruction 2

The songs chosen in accordance with a progressive plan are played, for example, into a sequencer program or in another music software with good

representational levels. In a single song there are also progressive levels of the accompaniment played into different tracks of the music software. The songs can be then opened in these music softwares for rehearsal and learning. The teacher's verbal instructions as well as other help is needed in the first phase.

The software, Band-in-the-Box and Power Tracks, have a good midi keyboard for demonstrating and clarifying musical issues. For more advanced levels, different sequencer software and for example Sibelius or Finale could be appropriate.

Planning of the computer aided part of instruction 3

The exercises for learning the scales, the chords and the inversions of the chords and the basic chord progressions of a key signature before going to the live songs and chord progressions of the same key signature can be done for example in Encore, Power Tracks Pro or Sibelius and Finale. In addition to musical notes, Encore and Power Tracks Pro also have good keyboards for outlining things visually.

Ways of clarifying instruction in the computer enriched teaching and learning environment (Teacher)

The presence of the teacher as a coach, helper and professional expert is crucial for learning to learn

To assist in making issues clearer, the instructor has at least:

- midi keyboard which is toggled to
- a computer and the (commercial) software for learning and doing music
- pedagogically and progressively organised musical software planned by the teacher
- an amplifier/speakers to get the sound out
- a document camera for music sheets, for writing etc.
- a data projector for showing things from computer

The ways helping learning in the computer enriched teaching and learning environment (Learner)

The traditional ways: playing from music sheets. This is always in a specific way and it is also a learning target.

A computer and software, midi keyboard toggled to a computer, speakers and earphones: this way the learner is able to practice with the help of software on his or her own. In addition to the (traditional) musical symbols the learner is able to listen, to see the music from different fretboards (piano, guitar and so on) and edit the music he is practicing in many ways (e.g., tempo).

Midi is very good for learning music at the first level of music study for its flexibility to allow for editing the music at hand. Also the connection of midi at the auditory level and the music notation and also the visible and sounding musical instruments, fretboards (which is like the keyboard of a piano), are great opportunities for learning. The function of audio is at the next, more professional level of learning or learning in a different way. In audio, the learner has mainly access to the voice for example of a CD only. In this environment both can be used depending on the function and level of music study.

A Figure:
The important variables of the computer enriched learning environment

