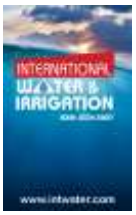

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Volume 44 Issue 2 (2025)
ISSN: 0334-5807
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Platform for Teaching Music Online

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Abstract: During the first half of the evaluation, the students attended the school by taking courses online; for the second half of the evaluation, they attended classrooms in person. For the period of the trial, the students visited the school. Following that, they proceeded to physically attend lessons. In this study, we examine the students' participation over the course of the three months, examine the impact of using the platform in-person versus virtually, examine the students' self-report data regarding their practice habits, and compare it with the collected data. However, the in-class procedure revealed a decrease in the utilisation of the platform, despite the fact that the data reveals that there was a considerable rise in student involvement during the lockdown period. This specific data demonstrates that students who are engaged in remote learning need a platform like this as a supplemental learning channel in order to be successful in reaching their educational goals.

Keywords: E-Learning; Music Theory; Ear Training, Schools, Students

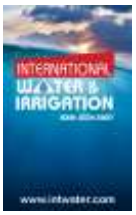
1. Introduction

During the height of the COVID-19 epidemic, many school activities were encouraged to make use of e-learning platforms. This was done in order to allow students and instructors to spend less time in person with one another while yet maintaining close communication (Hodges et al., 2020; Aurini and Davies, 2021). A variety of steps were taken to stop the virus from infecting other people. The results of several recent studies (Cao et al., 2020; Engzell et al., 2021) suggest that a considerable proportion of students may have experienced severe psychological stress as a result of the abrupt switch from in-person to online learning, which may have had an adverse effect on their academic performance.

Numerous specialists have arrived at these findings over the course of the most recent few academic years. Numerous knowledgeable individuals who are concerned about education have arrived to this view. According to the findings of a number of studies (Antonini Philippe et al., 2020; Mehrsafar et al., 2020; Spiro et al., 2021; Woodford and Bussey 2021), contexts such as music and sports, in which people are present and physical touch is essential for learning, have suffered a great deal. The rationale for this is because these environments are considered to be of great significance for the development of the kids. The aforementioned factors are the reason why this is the case. According to the writers Biasutti et al. (2021) and de Bruin (2021), this is due to the fact that it may assist us in gaining a better understanding of both individual and general educational issues. This can result in the development of new research, theories, and valuable insights that can be applied in a variety of situations where extensive use of technology is required for distance learning (see also Dammers, 2009; Cayari, 2011; Burrack, 2012; Daffern et al., 20).A significant educational experience gained in a number of different environments (Burnard, 2002, 2016; Odena, 2018; Addessi, 2020; Schiavio et al., 2021b). Participation in these scenarios was also requested.

The Main Ingredients: Creativity, Interaction, and Bodily Movement

The ambition of precisely defining creativity, on the other hand, continues to be one that is fraught with an extraordinarily high number of challenges. An interdisciplinary approach provides a wide range of results from systematic investigations carried out several countries. This research in music performance and music education reveals a wide diversity of findings. A diverse variety of results is shown by these studies. The concepts of creative



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collaboration and creative (musical) inventiveness are both addressed in these studies, which provide both theoretical and practical insights into the subject matter. These studies also give insights into the conceptualization of the topic matter. In addition to this, they provide insights into the topic matter that is being discussed. Specifically, the author defines "creativity" as "the development of a musical output that is novel for the individual(s) and useful for the situated musical practices." This concept is founded on the author's examination of the influence that reciprocal engagement has on creative musicking in a variety of educational contexts, and the author has taken that idea into account while developing this phrase.

The significance of interaction in the process of developing musical capabilities that are being gained by individuals with musical abilities. Regarding the clarinet course that we have designed, this is the second facet that we wanted to highlight as a point of attention. They achieve this by highlighting the substantial link that exists between creative endeavours and collaborative

efforts. Due to the fact that it enables the combination of group creativity and collaborative learning in a manner that seems to be natural, the setting in which instrumental music is taught is one of a kind. The year 2014 will be equal to 2013. The remarks that Pike and Shoemaker have made are included in the following paragraphs for your convenience.

In order to fulfil the purpose that was stated earlier in the line that follows, this activity was carried out. For the purpose of example, "breakout rooms" were used in each and every course for a wide range of different reasons and objectives. Just one example is shown here. This was done in order to cultivate a more social environment in the classroom. Taking these steps was done with the intention of making the development of these connections easier. After that, they were able to have a discussion about the possibility of developing new exercises, to practise a challenging passage together, or to carry out a specific assignment that they were jointly responsible for. In addition, this particular illustration will be discussed in the subsequent section.

2. Related Work

A significant transformation in the conceptual terrain that is used to research and comprehend the body, action, and movement. The factors that were discussed before are the explanation behind this. This is a very wide interpretation of the concept. Researchers who take an embodied viewpoint regard mental life to be a characteristic of a brain–body system that is functioning. On the other hand, this is in contrast to the conventional viewpoints, which often attribute the mind to brain structures. As a result, it is possible to come to the realisation that categories such as motions, acts, or gestures might be regarded to be cognitive tools on their own. This realisation has been made possible since 2007 (Borgo). For the purpose of problem-solving, thinking, experiencing emotions, communicating.

Following the discovery of the newly discovered motor configurations, the following phases included contextualising, re-exploring, hybridising, and, if necessary, modifying them on the spot. 2021 is the year that Willatt and Flores will be While the students were involved in movement-inspired solo work during the breaks between sessions, it is crucial to note that they also participated in a considerable amount of exploratory-motor activity while they were meeting together.

In general, the principles of creativity, interaction, and physical movement were defined in a broad sense for the whole of the class, and each and every lesson focused on these ideas. In addition, the classroom experience included both hands-on activities and opportunities for reflection at all times. Our ability to analyse how novice learners saw our musical course was made possible by conducting an analysis of the verbal reports that were supplied by novice learners during two separate individual interview sessions. The method in which this objective was reached was by conducting an investigation into the manner in which the initial musical-learning experiences of our participants evolved inside the framework of this remote learning environment. According to what Hoever(2012) and his colleague scholars have claimed, In the next step, we will provide a report on the qualitative data that was gathered from the interviews that were carried out with each individual participant. This study was

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carried out during the course of the interviews that were performed. Following this, we will address the ways in which these results may give richer understandings of the creative, collaborative, and movement-based features that are at the centre of the curriculum. Lastly, we conclude by bringing up some potential implications of these findings.

3. Methodology

3.1 Method

An approach known as concurrent triangulation mixed-methods design was used by us throughout the whole of the research project in order to conduct both qualitative and quantitative analyses. Consequently, the project in issue is both a case study and a quasi-experimental examination. This is because of the aforementioned circumstance. Furthermore, in order to investigate qualitative and quantitative data that is created from the evaluations that were received from students on their experiences with Second Life, the research makes use of a complementary approach and an integrative viewpoint. This is done in order to research the data.

3.2 Ethical Considerations

Which was revised in the year 2013. In light of the fact that the research in issue involves human participants functioning within the framework of an educational intervention, this was carried out. As was said in the 23rd item of this declaration. Regulation (EU) 2016/679, was approved by both the European Parliament and the Council on April 27, 2016, outlines the protective measures that need to be taken. All of the participants have been given comprehensive information on the objectives of the study. It was not possible to lose one's anonymity.

3.3 Sample

The selection criteria were not chosen at random. A lack of consistency in the sample was brought about by the death of individuals, which is referred to as experimental mortality. The sample sizes have a tendency to change based on the measuring instrument. In addition, the following instruments (table 1) were used in order to compare the information that was gathered on the same subjects both before to and during the service.

Table 1: Description Of Variables-Based Samples.

Tool	Before the SL Activity	During the Activity	After the SL Activity
"Digital competences (INCOTIC)"	N = 23 Sex: 60.9% female and 39.1 male Age: $\bar{X}$ = 28.78 DT = 8.26		N = 22 Sex: 63.6% female and 36.4 male Age: $\bar{X}$ = 25.68 DT = 3.33
"Register of Student Reflections of master's degree" (RF-MASTER)	N = 22 63.64% female Age: $\bar{X}$ = 28.5 DT = 8.48	N = 23 60.86% female Age: $\bar{X}$= 28	N = 16 62.50% female Age: $\bar{X}$= 28.44 DT = 7.09
"Digital competences in the area of music" ("USMUS", "Music and ICTs", and "Uses of Music")	N = 22 63.64% female Age: $\bar{X}$ = 28.5 DT = 8.48		N = 16 62.50% female Age: $\bar{X}$ = 28.44 DT = 7.09
Self-evaluation			N = 21 Sex: 66.7% female and 33.3 male Age: $\bar{X}$= 27.95 DT = 6.87

Through the use of the INCOTIC questionnaire, we were successful in matching 17 individuals. 64.7% female and 35.3% male were present among the participants, with the mean age of the participants being 28 years old.

30.36 years was the average age of the people who responded to the survey, and the DT was 7.85.

A list of the instruments used for the purpose of data collection can be seen in Table 2. Under the first iteration of the Troubadour platform, students were supplied with a tool that enabled them to further strengthen their ear

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training and overcome particular problems by providing them with motivation to engage in ear training. The application for interval dictation was first included into the platform (Figure 1) at the beginning of the deployment. In the first and second years, the students enrolled in two different courses were divided into two categories. The control group consisted of 14 students, did not make use of the platform, while the sample group consisted of 19 students, did make use of the platform.

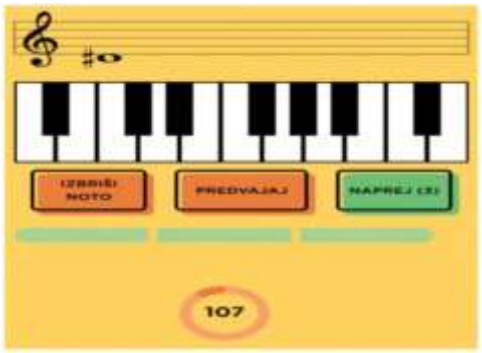

Figure 1: Interval Dictation App.

A list of the instruments used for the purpose of data collection can be seen in Table 2.

Table 2: What You Need.

Name of Tool/Survey	General Characteristics	Reliability
INCOTIC 2.0 [68]	Self-evaluation of digital competence. The tool is made up of 32 items on a 1–5 Likert-type scale, from 1 = 'totally disagree' or 'I don't know how to do it', to 5 = 'totally agree' or 'I know how to do it without hesitation'. The items are organized along the following dimensions: informational proficiency (5 items), technological proficiency (5 items), multimedia proficiency (4 items), communication proficiency (5 items), attitudes and expectations (13 items)	The tool's total reliability is α = 0.821 in the pre-test and α = 0.892 in the post-test

The development of rhythmic patterns was particularly challenging in comparison to the generation of interval sequences. When it came to avoiding illogical rhythmic sequences, which would eventually demotivate the customers, this was particularly true. There were four distinct rhythmic sequences that were incorporated in each and every game that was a part of the plan for rhythmic dictation. It was possible for the learner to fill in the beat that they sensed by using the rhythmic keyboard (Figure 2).

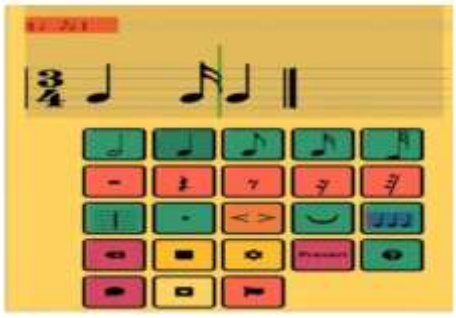

Figure 2: A Rhythmic Dictation Software.

3.4 Procedure

The featured activities included the development of music didactic units for a secondary school through the utilisation of information and communication technology (ICT) tools, the creation of a musical repertoire that is adapted to ICTs for didactic purposes, and the investigation of the possibilities of sharing these materials on social networks while also investigating the benefits and drawbacks of utilising ICTs as a method of teaching music. After that, preservice teachers who were already working in the field provided assistance to secondary school

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students who were attending a public school on a bimonthly basis. These kids were attending the school. The children in question were students at the school. The third table (A) A qualitative analysis of themes was also carried out on the reflecting recordings that were created. This was done in addition to the previous point.

As shown in Figure 3a, the teacher has the ability to retrieve the essential statistics data for the current week using the landing page view of the administration module. There is a list of their classes that can be found in the side menu (Figure 3b), which is accessible to the instructors. Additionally, information on the pupils that are enrolled is included in each classroom. Additionally, classrooms may be searched and sorted (located in the upper right corner).

Figure 3: Platform-Integrated Learning Management. Administration Panel; Classroom List.

The instructor have access to a comprehensive overview of the classroom, which has the list of all homework assignments. Changes or deletions may be made to each individual assignment (Figure 4a). Figure 4b illustrates that the instructor is able to see unique statistics data for each particular assignment. The instructor is able to monitor the amount of time spent and the score that was earned by each student that is registered. There is additional statistics accessible for aggregate homework assignments, such as the average number of points earned in the amount of time spent on each assignment.

Figure 4: Homework List. Overview Of Homework; Statistics for Assignment.

Table 3: Co-Triangulation Mixed-Method SL

Case Study—Data Collection			
Pre-Test	SL Activity		Post-Test
Quantitative Techniques	- INCOTIC 2.0 [28] - UBMUS [31] - 'Music and ICTs' questionnaire [32] - 'Uses of Music' questionnaire [33] - Self-evaluation [34]	- High school (secondary) students and university students acquired competences in the areas of citizenship and social responsibility, specifically regarding the responsible use of ICTs in the area of music	- INCOTIC 2.0 [28] - UBMUS [31] - 'Music and ICTs' questionnaire [32] - 'Uses of Music' questionnaire [33] - Self-evaluation [34]
Qualitative Techniques	- 'Register of Student Reflections of master's degree' (RF-MASTER)	- 'Register of Student Reflections of master's degree' (RF-MASTER)	- 'Register of Student Reflections of master's degree' (RF-MASTER) - Focus groups
Data Analysis			
Quantitative analysis, emergent categories (Atlas.ti software) through thematic analysis + descriptive, inferential statistics (SPSS software)			

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(Figure 5) The amount of time spent working through various exercises. Because students soon became proficient in the method of doing the exercises at the provided difficulty levels, we anticipated that it would diminish over the course of time. Seven and a half minutes was the average amount of time that kids spent on each activity during the first week of school. The number dropped to 6.35 minutes during the course of the next week. Students worked through the task for a period of time ranging from two to three minutes. Hence, the calculation time was cut by more than fifty percent.

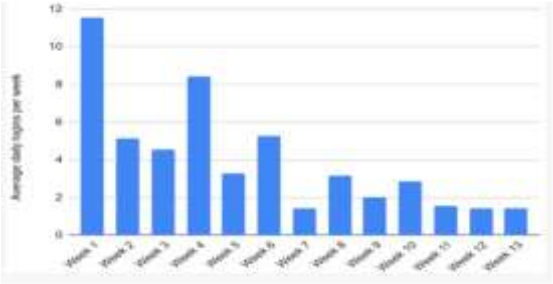

Figure 5: Count Of Weekly Logins

3.6 Methods of Data Analysis

Through the use of qualitative analysis, we were able to recognise the parallels that were present across a broad variety of ideas, thoughts, and issues. After that, connections were formed, and after that, the approach was included with material that was in agreement with the theoretical framework of this study. By making use of the tools and techniques of data collection used in this research, we were able to establish a dialectical connection between all of the information related to the topic of the study. The method of triangulation was responsible for making this a reality. For the analysis that was carried out, version 8 of the Atlas.ti programme was used. This particular version of the programme was produced in Germany by Scientific programme Development and ATLAS.tigesellschaft. A confidence interval with a degree of accuracy of 95% was used with the assistance of SPSS Statistics 21.0 (IBM Corporation, Armonk, California).

The comments of the students included in Table 4, suggested that there are a number of components of the platform that have room for improvement. For the most part, the findings suggest that the majority of students continued to have an interest in using the platform after three months.

Table 4: Most Common Student Replies to Platform Likes and Dislikes

Liked	Disliked
Scoring and a sence of competition.	Problems setting the tempo for rhythmic tasks
A simple rhythmic dictation application that offers good functionality for listening training.	Monotony of excersises. Some are too easy. Inability to change thesound (from piano to another instrument)
Levels and badges that give the user the opportunity to improve.	Platform shape problems (layout, colours)

4. Results

During the service, before the service, and after the service are the three periods in time that serve as the foundation for the organisation of the outcomes. In addition, the latter presents a summary of the results that were acquired from the self-evaluation of SL in conjunction with the performance of the other instruments.

In order to develop 539 emergent categories, the qualitative results that were obtained from the student responses that were included in the "Register of Student Reflections of master's degree" tool (RF-MASTER) were used. This was done in order to accomplish the goal of creating the categories. It was the results that led to the

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development of these categories. For the purpose of developing these categories, the many comments that were provided by the students served as the foundation.

Table 5 provides a summary of a comparison and analysis of the approaches that were examined with regard to their capacity to calculate the AV values. A robust AV computation method should, in a nutshell, have a solid theoretical base and be capable of allowing for quantitative performance assessment. Among the strategies that were examined, the system ID approach is the only one that incorporates a theoretical framework; nevertheless, it makes use of temporal information that is not accessible for media evaluation.

Table 5: Comparing Existing AV Computation Methods

Name	Field	Accuracy	Temporal Information	Geometric operation
AV modeling	Video	N/A	No need	No need
Fuzzy	Music	N/A	No need	Need
System ID	Music	78.4% (a) 21.9% (v)	Need	No need

4.1 Pre-Sl Experience

4.1.1 *Music ICT Knowledge and Competence*

There were a lot of different ways that these future teachers had learned how to use information and communication technologies (ICTs) in music. Some of these were learning on their own, going to general or specific classes or courses, getting help from coworkers and peers, taking part in tutorials, watching videos on YouTube, or using software like Sibelius and LOGIC (source: RF-MASTER). Due to the fact that these high school kids already had these abilities and expertise, we decided to incorporate them as members of our particular group.

5. In-SL Experience

5.1 SL Develops Citizenship and Social Responsibility Competencies

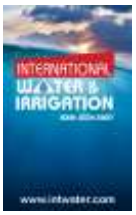
Communication technologies, often known as ICTs. There is a correlation between all of these factors and an increase in the motivation of young people to pursue academic pursuits (source: RF-MASTER).New knowledge and experience in the realms of music and information and communication technologies are being introduced. At the same time, it provides them with the chance to engage in direct interaction with students who are already enrolled in high school (ESO), and the personal growth that is associated with this experience aroused their attention.

5.2 Course Learning and Music Preferences

Tuner, Audacity, Garage Band, learning programmes, and Metronome were the most popular options among our student participants when it came to studying the content that was presented in the course. Other popular choices were learning applications. Access can also be achieved via the usage of many other devices. Additionally, students make use of a wide range of websites and blogs that have been created by music education instructors. These resources are used by the students. Last but not least, Finale, Sibelius, and MuseScore are the three computer programmes that students choose to use while they are writing music and generating scores (source: RF-MASTER).

5.3 Teach Stereotypes and Music Apps

The findings of a study that was carried out by RF-MASTER reveal that it is of the highest significance for educators to get training that focuses an emphasis on the need of having knowledge of the many types of musical genres.



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SL and Student Collaboration

The assignments were distributed in a fair and equal way with the intention of achieving a common objective collectively. The group was able to successfully react to the necessity to engage in remote learning, which is often referred to as e-learning. Additionally, they were able to effectively adapt to the pandemic scenario. According to the words of one of the individuals who participated in the survey, "especially in the moment when we were facing the high school kids in class, this brought us together a great deal" (source: RF-MASTER).

Contentment using SL Methodology

The students emphasise their own feeling of pleasure as a result of having learned knowledge that is valuable to society via the process of sharing, presenting, and passing on information to junior high school pupils (source: RF-MASTER). This knowledge is beneficial to society. Students were able to acquire "broad" knowledge in terms of suitable instructional techniques that make use of resources concerning information and communication technology in the context of music education. This knowledge was obtained by the students. This particular piece of knowledge was accountable for 62.50 percent of the overall understanding that the students had acquired.

Better Music Classroom Apps and Platforms

It was discovered via a post-test that was carried out by INCOTIC that fifty percent of all respondents were in agreement with the statement that the utilisation of digital technology makes it simpler for them to connect with their classmates and professors. Access to information (87.50 percent), the development of material, and the creation of new content are the three most significant advantages of information and communication technologies (ICTs) in the context of the teaching and learning process that takes place in a music classroom.

6. Conclusions

In summary, the utilisation of Second Life has proven to be a really innovative experience in terms of the learning opportunities it has provided. As a result, both the preservice teachers' personal opinions and how they understand the social framework in which they operate have changed. Additionally, the way in which they see the social situation has also been altered. Information and communication technology (ICT)-based Second Life research is needed, and it should include the needs of underprivileged kids who do not have access to these kinds of resources. Even if, in this particular circumstance, it is possible that the increase of their digital talents would not continue to develop any further after the experience, it is still possible to complete the promotion of socialisation and critical ability.

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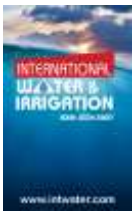

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