Liberty University

School of Music

An Online Beginner Piano Course

A Fully Asynchronous and Online Curriculum for Beginner Piano Instruction

A Thesis Submitted to

the Faculty of the School of Music

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Master of Arts in Music Education

by

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Abstract

The purpose of this applied curriculum is to provide piano instruction through an online and asynchronous method. Online and asynchronous methods of learning have been increasing in higher education and, especially during the COVID-19 pandemic, have been used in the primary and secondary levels. This trend shows no signs of stopping. Much research has been done in online methods of learning in higher education; however, not nearly as much has been done with lower age groups. More research and experimentation is needed in the application of these methods at the primary and secondary levels. Considering this, the course conceived of in this curriculum project is meant to be conducted entirely online through video lessons, video assessments, email, a discussion forum, and other tools of an online learning management system. None of the instruction will be synchronous. Participants will take a pre-test to confirm whether they are beginner students. These students will then learn musical concepts and be introduced to songs through videos in two-week modules for a total of twenty-four weeks. In each module, they will practice pieces and express their understanding of the musical concepts through worksheets, quizzes, performances, and original compositions. As they progress through the course, participants will have access to teacher and student feedback. Data on the effectiveness of the curriculum will be collected via piano performance videos, worksheets, quizzes, and surveys during the course and at the conclusion of the course.

Keywords: asynchronous, online, piano lessons, education, virtual learning

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Chapter One: Introduction

Background

Online learning has been expanding for some time in higher education. It is easy to find fully online and asynchronous degree programs being offered by accredited colleges. With the COVID-19 pandemic, however, implementation of online tools and asynchronous methods of teaching promulgated further, even down to the primary and secondary levels. The academic results of this shift to online learning during the pandemic, however, had not been especially promising in younger grades. Even in schools that ordinarily implemented hybrid learning models before the pandemic, students had tended to fare worse than their counterparts within in-person schooling environments.[1]

Still, online learning remains an attractive alternative for parents and students. This is evidenced in the fact that about twenty percent of U.S. school districts in 2020 had already adopted, planned to adopt, or were considering adopting virtual schools after the end of the pandemic.[2] This does not include the many homeschooled students who already accessed online learning to a significant extent in their education.

For students who receive their education in homeschooled settings or primarily online, piano instruction may not be as readily available as in a traditional school setting. Many of these families, also, need to pay out-of-pocket for lessons. In other cases, as with many homeschooled families in California, families with homeschooled children may have only a limited amount of

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[1] Charisse Gulosino and Gary Miron, "Growth and Performance of Fully Online and Blended K-12 Public Schools," *Education Policies Analysis Archives: A Peer-Reviewed, Independent, Open-Access, Multilingual Journal*, Vol. 25, No. 124, (December 2017): 1, https://doi.org/10.14507/epaa.25.2859.

[2] Heather L. Schwartz et al., "Remote Learning Here to Stay Despite Challenges," *Rand Corporation: Objective Analysis. Effective Solutions*, (December 2020): 1, https://www.rand.org/pubs/research_reports/RRA956-1.html.

funds from the state for a given school year they can spend on academic pursuits. Private or group lessons can be cost-prohibitive for families in both situations.

Statement of the Problem

The problem, therefore, is that there is a strong desire among many parents and K-12 students for the flexibility of a non-traditional, homeschooled or hybrid education, which includes instrument instruction; however, the methods, tools, and funding to make that education successful in comparison to traditional schools is lacking. There is plentiful research in online instrument instruction and asynchronous instruction more broadly in higher education; however, the literature has not fully addressed the effects of online, asynchronous learning among K-12 students when it comes to learning beginner piano. Most of the focus has been on higher education. In addition, technologies that facilitate learning are constantly being created and modified. Even if a research study concluded there were certain problems in a previous method of online learning or teaching, by the time that study is published, new technologies may already have been created to address them. In summary, the rationale for this curriculum includes the need for quality online education for K-12 students, the practical problem of lowering the cost of lessons for students, and the opportunity to experiment with integrating ever-changing online tools to facilitate the piano instruction.

Statement of the Purpose

The purpose of this curriculum project was to design an effective online and asynchronous method of beginner piano instruction that is academically successful, meets the perceived needs of parents and students, and is more cost effective than both synchronous online and in-person instruction. The participants would include students old enough and competent

enough to interact with digital tools. These tools include email, YouTube, and a custom generative pre-training transformer (GPT).[3]

Self-motivated students could, theoretically, learn to play the piano via video tutorials, discussion groups, and email interactions with a teacher. Considering this, the teaching method includes email interactions between students and teachers. This is the main line of communication between the student and teacher. The curriculum includes videos to teach general concepts. This is the main mode of instruction. Students will complete worksheets and quizzes to assess their progress, and songs will be performed and recorded by students to assess progress as well.

The outcomes of such a method of teaching have not been fully explored. Such outcomes include how much content can be processed and applied by students with this type of curriculum and what student attitudes toward this method of teaching might be. In addition to assessing the level of learning that can be accomplished with an online, asynchronous method of instruction, it is important to explore the perceptions, whether positive or negative, of the teacher and students concerning the experience. These perceptions would include, among others, how difficult or easy the method of learning/teaching was, and whether students would consider taking such a course again.

Piano instruction is, by its nature, praxial. The idea of a "praxial music education" was first formulated by David J. Elliott. Foundationally, Elliot states that, while part of educating students in general music involves listening to music and appreciating it, what is central to music education is the actual making of music: performing, improvising, composing, arranging, and

[3] Gokul Yenduri, et al., "GPT (Generative Pre-Trained Transformer) – A Comprehensive Review on Enabling Technologies, Potential Applications, Emerging Challenges, and Future Directions," *IEEE Access* 12, (April, 2024): 54608, https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=10500411.

conducting all included.[4] Considering this, every lesson in this curriculum requires the student to learn to play a song that incorporates that lesson's content.

Such content includes concepts like the accurate understanding and application in performance of basic notation (C Position in the Treble and Bass clefs), rhythm (quarter, half, dotted-half, and whole notes), and dynamics (symbols from pianissimo through fortissimo). Student progress will be assessed in every module by the teacher and feedback will be given to the student on a weekly basis. A pre-test before implementing the curriculum and a post-test after implementing it will be given to students to assess this progress. Students will also be surveyed at the end of the course to discern their perceptions of the class. Both the qualitative and quantitative information gained from this will converge to provide a comprehensive understanding of the effectiveness of the curriculum.[5]

This course is coupled with a kind of "virtual teacher" via a custom GPT. More will be explained later in the paper about how this works, but in short, a custom GPT is an online tool that acts like a chatbot for a specific subject. Students will be able to ask questions of this chatbot in the same manner as texting a teacher over a phone. They will then receive answers that address their questions immediately from the custom GPT.

Significance of the Study

Experimenting with teaching younger students online, as opposed to the traditional classroom setting, is worthwhile for a few reasons. As mentioned above, one reason is that online learning is becoming an attractive option for more and more families and students. This is

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[4] David J. Elliott, "Introduction," in *Praxial Music Education: Reflections and Dialogues*, ed. David J. Elliott (Oxford: Oxford University Press, 2005), 7.

[5] John Creswell and J. David Creswell, *Research Design: Qualitative, Quantitative and Mixed Methods Approaches, 5th Edition,* (Los Angeles, CA: Sage, 2020), 33, Kindle.

illustrated by the demand among parents and students for virtual schooling. Families are increasingly seeking out alternative educational models that do not involve the traditional brick-and-mortar school.[6]

Second, children growing up today in developed countries are increasingly adept at navigating virtual realities, and they expend significant engagement time with them. Video platforms like YouTube are routinely accessed by young people. Access to music platforms like Soundcloud is expanding the musical imagination of young artists. Social media sites like Tiktok and YouTube are accessed more frequently as well. Taking advantage of meeting students in a familiar environment to teach music seems to be a worthwhile effort.

Third, music education in schools and private settings can be costly. Online, asynchronous piano teaching has the potential to significantly lower the cost of piano lessons for families and school districts that want to incorporate music into the lives of students but cannot allocate the funds towards it. By offloading most of the teaching to videos and an online learning platform, a teacher can ideally enroll more students and charge less for services. Students going through this course, however, are not left to understand the content on their own. The teacher still interacts with students via email and video responses to give feedback and answer questions. This method has the potential to offer a comprehensive educational experience.

Research Questions

There are certain questions that are important to consider before formulating the kind of curriculum envisioned in this paper. What do we know already from traditional teaching methods to be beneficial in the typical classroom? Many educators have written extensively on best

[6] Asher Lehrer-Small, "Virtual School Enrollment Kept Climbing Even as COVID Receded, New Data Reveal," *The 74,* November 14, 2022, https://www.the74million.org/article/virtual-school-enrollment-kept-climbing-even-as-covid-receded-new-data-reveal/.

practices when it comes to how one teaches. How can these practices be incorporated into an online, asynchronous curriculum?

What methodological framework best fits this kind of curriculum? Piano instruction is an instruction of practice and procedural knowledge. This differs from other subjects like math or English. The right framework applied in the right way is necessary for the success of such a curriculum as the one proposed in this paper.

What kind of assessments would best assess the progress of students throughout the course? In an asynchronous course, the interactions between student and teacher will be less immediate and possibly less frequent in comparison to the traditional in-person classroom or even synchronous online classroom. Also, the interaction that does occur has the potential to be more superficial. This makes reliance on video and worksheet assessments more important. How can assessments be created in such a way as to give an accurate picture of how much progress a student has made?

Definition of Terms

The term "asynchronous" means "not synchronous" or not occurring at exactly the same time.[7] In the context of education, this means that the teacher's teaching and the student's learning are not happening at the same time. A teacher may record a lecture, for example, that the student who misses class may watch later. This would be considered asynchronous education, as opposed to synchronous education. Synchronous education occurs when the student is learning at the same time the teacher is teaching, such as in the traditional in-person classroom setting.

[7] *Merriam-Websters Collegiate Dictionary, 11th Ed.,* s.v. "asynchronous."

The term "online" means "connected to, served by, or available through… a computer or telecommunications system (as the Internet)."[8] Online education, therefore, refers to students learning from teachers not in-person but via the internet. In the context of this paper, the label "online education" should not be confused with "hybrid education," which implies an education that is partly given online and partly in-person.

Hypothesis

Hybrid learning and online learning in the K-12 setting has, at this point, generally proven to be substandard in comparison to in-person learning. Virtual and hybrid schools tend towards unsuccessful student outcomes compared to their brick-and-mortar counterparts. In addition, group learning within in-person classrooms has proven historically to be substandard in comparison to private one-on-one learning. Benjamin S. Bloom recognized this in 1984 when he outlined "The 2 Sigma Problem." Tutoring, according to his research, was vastly superior to group teaching. He conjectured that this was because, in the tutoring setting, teachers could offer instant feedback and encouragement to students in a way that classroom teachers could not or, unbeknownst to the teacher, would not.[9]

Considering these educational realities, I hypothesize that this asynchronous, online curriculum, coupled with a virtual tutor via a custom GPT, can be the most successful method of teaching piano for students who are unable to access piano instruction in other settings. It will be successful in terms of student performance of songs, student comprehension of the course content, student perception of the learning experience, and cost of lessons. I also hypothesize

[8] *Merriam-Websters Collegiate Dictionary, 11th Ed.,* s.v. "online."

[9] Bengamin S. Bloom, "The 2 Sigma Problem: The Search for Methods of Group Instruction as Effective as One-to-One Tutoring," *Educational Researcher* 13, no. 6 (June 1984), 4-5.

that students with high self-motivation to learn piano and with greater familiarity with technologies related to this course, such as email, YouTube, and other tools, will succeed the most in this setting. Success in this course will not be as effective as an in-person, private lessons or one-on-one tutoring sessions. However, I suspect that constant access to the content of this course (videos, worksheets, etc.), immediate access to a custom GPT virtual tutor, and correspondence with a teacher during the week will make the course more effective than a traditional group piano class that meets in-person for only one hour a week and offers no academic support outside the classroom.

Chapter Two: Literature Review

Introduction

With the COVID-19 pandemic, teachers, parents, and students all over the United States and around the world were forced to move to completely online education for months. Online education is not a new phenomenon, having been practiced and researched for years.[1] However, most of this practice and research pertained to higher education. COVID-19 forced this method of learning onto younger students who used online tools like Zoom and Google Classroom to continue their education.

For many parents and students, this online experience, coupled with the stress and uncertainty of the pandemic itself, was an unpleasant one. Schools dealt with staff shortages, school closures, and mental health challenges. Academic achievement suffered in comparison to pre-pandemic levels.[2] Many parents were stressed trying to arrange childcare assistance, working from home, dealing with salary reductions, and having reduced opportunities to socialize.[3] However, certain statistics suggest that not every family found the experience of online education to be a negative one.

Considering this, the purpose of this curriculum project is to offer a mode of piano instruction that is online and asynchronous but that still takes advantage of the input of an active teacher to accommodate families that desire an online education. Asynchronous instruction, or an

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[1] Starr Roxanne Hiltz and Ricki Goldman, "Foundations of Research on Learning Networks," *Learning Together Online: Research on Asynchronous Learning Networks,* ed. Starr Roxanne Hiltz (Taylor & Francis 3-Library, 2009), 40-42, Kindle.

[2] Megan Kuhfel et al., "The Pandemic has had devastating impacts on learning. What will it take to help students catch up?", *The Brookings Institution*, March 3, 2022, https://www.brookings.edu/articles/the-pandemic-has-had-devastating-impacts-on-learning-what-will-it-take-to-help-students-catch-up/.

[3] Sanna Rehman, Katherine Gibson Smith, and Amudha Poobalan, "Parental experiences of education at home during a pandemic," *Education in the North* 28, no. 3, (2021), 162, https://doi.org/10.26203/frrg-xz45.

asynchronous learning network (ALN) to which it is referred in the relevant literature, "combines self-study with substantial, rapid, asynchronous interactivity with others." Students "use computer and communications technologies to work with remote learning resources, including coaches and other learners, but without the requirement to be online at the same time."[4] The "coach" in this curriculum is the piano teacher while the "learners" are the piano students. Interactions with a teacher occur via email, a discussion platform, and video messages. Strictly video courses have been and are being commonly offered online, while private piano lessons commonly occur online via Zoom or other online platforms in synchronous instruction. However, little to no asynchronous instruction has been attempted among students in secondary grades, in piano instruction or otherwise.

Below are a list of articles, books, and web pages that give context to the structure of this curriculum project. In this list are outlined the rise in popularity of non-traditional education, the effects of the emergency adjustment to online education during the COVID-19 pandemic, the prospects of online education in the K-12 sector, previous research in the use of online technology in education, and relevant literature and videos that contributed directly to the formation of this curriculum.

The Rise of Alternative Education

Virtual and hybrid schools in the K-12 setting have been live options for parents across the United States well before the COVID-19 Pandemic forced children into virtual schooling. Andrew Saultz and Lance D. Fusarelli in the article "Online Schooling: A Cautionary Tale" make the case that academic outcomes in these schools have not been as high as in the traditional brick-and-mortar school setting. In their estimation, virtual and hybrid schools are not regulated

[4] Hiltz and Goldman, *Learning Together Online: Research on Asynchronous Learning Networks,* 37-39.

enough and are growing at a rate that is too fast. Reforms are needed.[5] Charisse Gulosino and Gary Miron echo this conclusion in "Growth and Performance of Fully Online and Blended K-12 Public Schools." In their analysis of K-12 virtual and blended (hybrid) schools in the 2014-2015 school year, they found that students in these schools performed worse than their counterparts in traditional classrooms. In addition, students in schools run by companies tended to fare worse than students in virtual schools run by districts.[6]

These conclusions highlight both the popularity of virtual schools even before the pandemic and the need for curriculum and reforms in these schools that address the academic needs of students. There is demand from many families for virtual schooling options. It is therefore incumbent on researchers and educators to meet this demand with reform, experimentation, and a standard of best practices for virtual schools.

The homeschooling community, for the sake of this paper, can be defined in two categories. There are students whose education is funded by the state with certain academic standards required but whose education is largely left to parents to orchestrate, and there are students whose education occurs outside the structure of any official school at all. These students are taught primarily by their parents, teachers who assist in the home with certain subjects, and/or teachers to whom students go to for tutoring or classes. Brian D. Ray in "An Overview of the Worldwide Rise and Expansion of Home Education Homeschool" explains that homeschooling has seen tremendous growth over the last few decades.[7] Pell in the article "At

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[5] Andrew Saultz and Lance D. Fusarelli, "Online Schooling: A Cautionary Tale," *Journal of School Choice* 11, no. 1, (2017), 29, https://doi.org/10.1080/15582159.2016.1272928.

[6] Gulosino and Miron, "Growth and Performance," *Education Policy Analysis Archives: A Peer-Reviewed, Independent, Open-Access, Multilingual Journal* 25, no. 124, (December 2017), 28.

[7] Brian D. Ray, "An Overview of the Worldwide Rise and Expansion of Home Education Homeschooling," *Global Perspectives on Home Education in the 21st Century,* ed. Rebecca English, (IGI Global, 2021), 2.

Home with Technology: Home Educators' Perspectives on Teaching with Technology" makes the point that most homeschooling parents see themselves as their children's primary teacher. In a survey of 289 home educators across the globe, she found that most parents use technology in their children's education. Most encourage their children to use technology for projects (75%), teach with technology as an assistant (57%), and have children who have and use their own devices like laptops or desktop computers (71%).[8]

The curriculum in this project places the music teacher as the primary teacher regarding piano instruction. Only 3% of parents, according to the survey, use technology as a primary teacher.[9] However, the great familiarity many homeschooled children have with technology makes the transition to this kind of curriculum much easier. Also, because of how active parents of homeschooled children are in their children's education even with technology, the effectiveness of a curriculum like this would be enhanced by the involvement of a parent.

Online Education During the COVID-19 Pandemic and Beyond

Diego Calderon-Garrido and Josep Gustems-Carnicer in their paper "Adaptations of music education in primary and secondary school" explain how they surveyed 335 teachers in Spain who adapted to teaching music online and often asynchronously, as this curriculum attempts to do. The teachers surveyed surprisingly felt they had more contact with students despite the situation. However, teachers felt a lack of instructions from governing bodies. They felt that there were insufficient methodological and material resources for them.[10]

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[8] Beverly Pell, "At Home with Technology: Home Educators' Perspectives on Teaching with Technology," (PhD diss., University of Kansas, 2018): 64-65, http://hdl.handle.net/1808/28026.

[9] Ibid., 64.

[10] Diego Calderon-Garrido and Josep Gustems-Carnicer, "Adaptations of music education in primary and secondary school due to COVID-19: the experience in Spain," *Music Education Research* 23*,* no. 2, (March 2021): 139, https://doi.org/10.1080/14613808.2021.1902488.

The researchers Alison Daubney and Martin Fautley, who wrote "Editorial Research: Music education in a time of pandemic," described a similar experience in the UK. The transition to virtual schooling was a sudden shift for schools and teachers. Teachers had to quickly use their own judgment to provide grades which had originally been the job of examination boards. In all, teachers felt insufficiently prepared and supported.[11]

Both papers give voice to the experience of educators and students in the sudden and drastic shift from in-person learning to online learning during the COVID-19 Pandemic. Virtual schooling, in the United States at least, was already substandard in comparison to in-person learning. With the pandemic, educators were forced to adapt their curriculum immediately to an online environment. It would have been beneficial for students and educators if there had already been ready-made online curriculum they could have access to. If another pandemic happens, which is a very real possibility, such curriculum will be necessary.[12]

The articles "The digital 'turn' in music education (editorial)," "Remote Learning is Here to Stay: Results from the First American School District Panel Survey," and "Virtual Schools to Be Increasingly Common After COVID-19" outline the continuing shift towards virtual education. Camlin and Lisboa in "The digital 'turn' in music education" explore different ways researchers and educators have responded to the crisis. The authors expect this "digital turn" to impact music education in the future. This is forcing some educators to rethink what educating looks like. Teachers are beginning to see themselves more as facilitators guiding students to the vast wealth of information online and not so much as instructors imparting knowledge.[13]

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[11] Alison Daubney and Martin Fautley, "Editorial Research: Music education in a time of pandemic," *British Journal of Music Education* 37*,* no. 2 (June 2020), 107, https://doi.org/10.1017/S0265051720000133.

[12] B. Adams Williams et al. "Outlook of pandemic preparedness in a post-COVID-19 world," *npj Vaccines* 8, no. 178 (2023), 1. https://www.nature.com/articles/s41541-023-00773-0.

Schwartz in her article, "Remote Learning is Here to Stay: Results from the First American School District Panel Survey," explains that, in December of 2020, around 20% of U.S. school districts had already started, planned to start, or were considering starting virtual schools after the COVID-19 pandemic was over.[14] Paykamian in "Virtual Schools to Be Increasingly Common after COVID-19" essentially expresses the same conclusion, quoting school leaders about the demand for virtual schools.[15]

During the COVID-19 pandemic, the argument could have been made that the desire for virtual schooling would be short-lived. Once the pandemic was over, nearly every child who had been in a traditional classroom would return to the traditional classroom. School district planning for virtual schools is a sign that this is not the case. This curriculum seeks to address this desire and contribute to this reimagining of music education.

Previous Research Using Online Technology to Teach Music

This article by Jerry Fjermestad, Starr Roxanne Hiltz, and Yi Zhang, "Effectiveness for Students: Comparisons of "In-Seat" and ALN Courses," gives a summary of the results of over twenty-five studies between 1994 and 2003. Each of the twenty-five studies compared student outcomes between a cohort of students that took a class via an asynchronous learning network (ALN) and another cohort that took the same class in-person in a traditional classroom setting. The main finding was that in most of the studies students who learned via an ALN did as well or

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[13] David A. Camlin and Tania Lisboa, "The digital 'turn' in music education (editorial)," *Music Education Research* 23*,* no. 2 (April 2021), 129, 137, https://doi.org/10.1080/14613808.2021.1908792.

[14] Heather L. Schwartz et al. "Remote Learning is Here to Stay: Results from the First American School District Panel Survey, *RAND Corporation,* (December 2020), 1, https://www.rand.org/pubs/research_reports/RRA956-1.html.

[15] Brandon Paykamian, "Virtual Schools to Be Increasingly Common After COVID-19," *Government Technology,* March 24, 2021, https://www.govtech.com/education/k-12/virtual-schools-to-be-increasingly-common-after-covid-19.html.

better academically than students in traditional classrooms. Nearly all these studies were focused on graduate and undergraduate students. One, however, focused on a fifth-grade writing class. In this study, students who took that class via an ALN had more successful outcomes than those who took the class in-person.[16]

Learning how to play the piano via an ALN is certainly different than learning a subject that requires only writing work or a mental understanding of the content. However, this overview is useful in that it establishes the method of teaching via an ALN as one that is not inherently inferior to in-person learning. Technological barriers and a lack of teacher/student interaction in real time did not seem to hinder learning in most cases. The ALN tools that were used in these studies also are most likely old in comparison to the technologies we have now to assist students in an ALN course. Considering this, it seems entirely possible to create a successful ALN beginner piano course.

Renee Crawford explores the outcomes of "Project Music X," an online music education program, in her paper "Evolving technologies require educational policy change: Music education for the 21st century." "Project Music X" was intended to give children in remote and rural areas access to a quality music education through a mix of social media and blogging, as well as interactive creative activities. The project was largely successful in encouraging students to start learning an instrument, and it created a positive environment for music education. She argues that using these tools can fill an important gap in music education for students who cannot get quality music education.[17] Also, these tools are very accessible for younger students.

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[16] Jerry Fjermestad, Starr Roxanne Hiltz, and Yi Zhang, "Effectiveness for Students: Comparisons of "In-Seat" and ALN Courses," *Learning Together Online: Research on Asynchronous Learning Networks,* ed. Starr Roxanne Hiltz, (Taylor & Francis 3-Library, 2009), 112-115, Kindle.

[17] Renee Crawford, "Evolving technologies require educational policy change: Music education for the 21st century," *Australasian Journal of Educational Technology* 29*,* no. 5 (November 2013), 717, https://doi.org/10.14742/ajet.268.

Considering so many technological changes, Crawford argues, education needs to be reimagined with these technologies in mind. Crawford's view that technological tools can help fill important gaps in music education is most likely truer now than it was in 2013 when she wrote this paper. Today, all-in-one platforms allow educators to upload entire courses complete with quizzes, videos, and discussion forums. Custom GPT's, or chatbots, can be used to offer a virtual tutor to students. While not every component of "Project Music X" is reproduced in my curriculum, some successful components of her project are repeated, namely the access to educational content outside of a set class time and the use of a discussion forum.

Izzet Yücetoker, Çiğdem Eda ANGI, and Tuğçe KAYNAK conducted a mixed method study on the effectiveness of asynchronous piano instruction during the 2019-2020 academic year in Spain. The conclusions are outline in their paper, "Evaluation of asynchronous piano education and training in the Covid-19 era." While the authors acknowledge that distance learning has a place in education, the conclusion of the study was that asynchronous piano education was inferior to in-person education. Piano playing was often correct in more important areas like notation and rhythm, but staccato playing and legato playing suffered. The reasons given for why this kind of instruction was deficient are the lack of immediate feedback received in a classroom or private lesson, the reduced interaction between teachers and students, and the technological problems such as the lack of quality instruments.[18]

Most studies that involve using online platforms or integrating technology into education focus on synchronous instruction. This was one of the few examples of asynchronous instruction and is additionally helpful considering it is specifically piano instruction that the study focuses

[18] Izzet Yücetoker, Çiğdem Eda ANGI, and Tuğçe KAYNAK, "Evaluation of asynchronous piano education and training in the Covid-19 era," *Academic Journals: Expand Your Knowledge* 16*,* no. 4 (March 2021), 109, 115-116. https://dx.doi.org/10.5897/ERR2021.4136.

on. The study is valuable in providing information about where my curriculum could be lacking. The lack of immediate feedback can be mitigated via email and the custom GPT which is like a virtual tutor. Also, the study highlights the importance of high-quality lesson recordings that make the content easy to understand. "*Project Music X"* also demonstrated that the use of social media via blogging and discussion forums could help create a more positive experience for learners. Unfortunately, one deficiency that cannot be overcome in my curriculum is the access to a high-quality instrument. A student may only be able to afford a less expensive piano or electric keyboard to practice on. Less expensive keyboards may have no sustain pedal or no dynamic touch.

Something important to note in this study is the context in which students and teachers were assessed. The researchers concluded that asynchronous instruction is inferior to face-to-face instruction. This study, however, looked at teachers attempting to teach students during the sudden and chaotic shift to online teaching during the COVID-19 Pandemic. The curriculum had to be haphazardly retooled for online instruction with little time to think it through. It is still valuable to consider where asynchronous instruction may fall short even in this context, especially when it comes to student motivation; however, the conclusions may not be entirely applicable to a well-thought-out asynchronous curriculum.

Daniel J. Albert in his article "Social Media in Music Education: Extending Learning to Where Students 'Live'," pulls from existing research, educational frameworks, and theories to conjecture that social media could be used to help students learn. Students in the developed world already extensively use social media, so bringing education to these platforms would communicate with them where they already are. In 2013 (Albert's study was published in 2015), 77% of students ages 12-17 were using Facebook and 24% were using Twitter. These are two

widespread social media platforms. There is also an educational framework, social constructivism, that this kind of learning can be built on. Social constructivism has to do with the idea that students help each other build knowledge together in community. In this case, this building of knowledge together occurs online with social media.[19]

This article is somewhat dated in the sense that the percentages of students on Facebook and Twitter have almost certainly changed. But the core concept that learning communities can be created online is still applicable. My curriculum includes a discussion forum where students can analyze and critique each other's performances. In this way, students help each other learn within a kind of social constructivist framework.

Carol Johnson in her paper "A Conceptual Model for Teaching Music Online" attempts to outline a potential model for online instrument instruction. Essentially, she takes well-established educational theories and frameworks and applies them to the online environment. Her model includes both synchronous and asynchronous instruction. It is important to note that her model is meant for higher education, however, and assumes that students already have a level of proficiency with their instrument.[20] This model is not meant for beginner students as my curriculum is; however, there are some aspects that have been applied to my curriculum. Two of these are regular assessments and the use of asynchronous tools to allow students to reflect on content outside a set teaching time.

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[19] Daniel J. Albert, "Social Media in Music Education: Extending Learning to Where Students 'Live'," *Music Educators Journal* 102*,* no. 2 (November 2015), 31-32, https://doi.org/10.1177/0027432115606976.

[20] Carol Johnson, "A Conceptual Model for Teaching Music Online," *International Journal of Innovations in Online Education* 4*,* no. 2 (July 2020) https://dx.doi.org/10.1615/IntJInnovOnlineEdu.2020035128

Curriculum Development

An important book in the development of the curriculum itself was *Teaching at Its Best: A Research-Based Resource for College Instructors, 4th Ed.* by Linda B. Nilson. The book addresses how to best pull together and teach a curriculum meant for college students. However, the text was informative regarding how summative and formative assessments should generally be created. Specifically, Nilson addresses how to create assessments that demand deeper thinking on the part of the student being assessed.[21] Some of her advice has been applied to the formation of assessments in this course.

Another book that greatly impacted the formation of this curriculum was *Teaching General Music in Grades 4-8: A Musicianship Approach* by Thomas A. Regelski. Regelski emphasizes the need for students to not only learn concepts as individual bits of information but also to understand how those concepts integrate with a larger whole. He also emphasizes the need for mastery of a particular musical concept before building on it.[22] These, among other ideas, have been integrated into the curriculum.

Virtual Teachers and Video Feedback

In the keynote address for OpenAI's developer day or "DevDay" in November of 2023, Sam Altman, the CEO of OpenAI, unveiled a feature on ChatGPT that allowed users to create their own custom GPT's. In short, a custom GPT can act like a chatbot that answers relevant queries concerning whatever it is the custom GPT has been created to answer.[23] Sal Khan, the

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[21] Linda B. Nilson, *Teaching at its Best: A Research-Based Resource for College Instructors, 4th Ed.,* San Francisco: Jossey-Bass, A Wiley Imprint, 2016.

[22] Thomas A. Regelski, *General Music in Grades 4-8: A Musicianship Approach,* Oxford University Press, 2004.

[23] Sam Altman, "OpenAI DevDay: Opening Keynote," *YouTube,* November 6, 2023, https://www.youtube.com/live/U9mJuUkhUzk?si=uA-ttkO2MPo3Y9Rf, 26:00-31:00.

founder of Khan Academy, explained in his TED Talk how these chatbots could be used as virtual tutors for students.[24]

One of the weaknesses of a fully asynchronous course is that students do not have the benefit of immediate feedback or immediate answers to difficult questions. This hampers their learning. A custom GPT trained on the content of this curriculum can help bridge this gap by being a kind of virtual teacher for the student. While this feature is not explicitly mentioned in the curriculum in the Appendices, it is a vital component of the curriculum to imitate a kind of synchronous instruction.

Michael Henderson and Michael Phillips in their article "Video-based feedback on student assessment: scarily personal" explained how they examined the effects of teachers assessing student progress with video feedback. In this study, teachers gave feedback on graded assignments via short, 5-minute videos. The response from students was overwhelmingly positive, and giving feedback via video was easier and quicker for teachers to accomplish than giving written feedback. Both students and teachers valued the feedback process.[25]

In an online course that is entirely asynchronous, one problem is that the process and method of instruction can depersonalize the experience. Students and teachers can feel distant from each other, and this can affect student motivation. Video feedback during assessments that is specific to each student can help personalize the experience of learning for the student. Considering this, video feedback, while not explicitly mentioned in the curriculum, is primarily how the teacher will respond to students whenever possible.

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[24] Sal Khan, "How AI Could Save (Not Destroy) Education," *YouTube,* May 1, 2023, https://youtu.be/hJP5GqnTrNo?si=Rkf0Y9LOpnlLjNFn.

[25] Michael Henderson and Michael Phillips, "Video-based feedback on student assessment: scarily personal," *Australasian Journal of Educational Technology* 31, no. 1, (2015): 51, 63, https://doi.org/10.14742/ajet.1878.

Summary

Online learning is experiencing tremendous expansion in enrollment, and tools are readily available to meet the demand; however, the practice of teaching in this space is evolving to bring about better student success. There is interest among families to find alternatives to the traditional brick-and-mortar school. The methods, tools, and practices of online learning are still developing.

It is in this context that the current curriculum project is being conducted. The purpose of this curriculum is to offer an online, asynchronous method of piano teaching to students ages 13-18. Alternative modes of education are increasing in the United States, and experimentation with different methods of virtual education has the potential to add to the expanding body of knowledge in this field.

Chapter Three: Methods

Applied Research Study

This curriculum was created after conducting study into the relevant literature regarding online education and applying findings of this literature to the formation of the curriculum. This literature included articles and books explaining the cultural context within which this curriculum fits. It also included information about the best practices regarding lesson planning and the use of online and asynchronous tools. Additionally, at least one online educational tool that has not been used extensively in education (a custom GPT) was discovered. This relevant information was then applied to the formation of this curriculum to offer families who desire lower cost, non-traditional, and online options for piano instruction a successful method of instruction.

This curriculum is not meant to be generalizable to every music teacher or every K-12 grade. The cohort of participants or students will range between 13 and 18 years of age. This curriculum requires that the teacher be able to navigate and create curriculum in the LearnWorlds online platform, be competent using online tools like YouTube and email, and be knowledgeable enough to create a custom GPT. While none of this requires coding knowledge, it does require a large investment of time before the course is administered and a broad understanding of how these tools work.

Bloom's Taxonomy

This curriculum project is grounded in Bloom's Taxonomy. Bloom's Taxonomy is a standard educational framework through which to teach various academic subjects. In this framework, students progress through six categories of learning goals starting with *recognizing* or *recalling* certain concepts or terminology related to the subject. The student then transitions to

comprehension, where he or she seeks to understand or apprehend the subject "such that the individual knows what is being communicated and can make use of the material being communicated without necessarily relating it to other material or seeing its fullest implications." The student then accesses *application* which implies the "use of abstractions in particular and concrete situations." After this, working more deeply with the subject matter, a student progresses to *analysis*, or the "breakdown of a communication into its constituent elements or parts such that… the relations between ideas expressed are made explicit." The student then advances to *synthesis* which incorporates "putting together… elements and parts so as to form a whole." After this, a student *evaluates* the subject matter creating "judgments about the value of material and methods for given purposes."[1]

Bloom's Taxonomy was revised in 2001 with "action words" to illuminate the cognitive processes that learners experience when encountering and working with content. These "action words" seem to provide a better description of the mental process students go through as they engage with the content in this curriculum. The categories of *knowledge* to *comprehension* to *application* to *analysis* to *synthesis* to *evaluation* are roughly replaced by the categories of *remembering* to *understanding* to *applying* to *analyzing* to *evaluating* to finally *creating*. In both terminologies, the underlying idea of enabling a learner to transition from ascertaining general terms, symbols, and concepts to the implementation of these in deeper and more engaging ways applies.[2]

[1] Patricia Armstrong, "Bloom's Taxonomy," *Vanderbilt University Center for Teaching*, (2010), https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy.

[2] See Appendix A for a visualization of how this framework is applied in a given module.

Curriculum Design

This curriculum project is an asynchronous and online curriculum for the purpose of teaching students ages 13-18 how to play the piano at a beginner level. This curriculum is specific to the author's teaching context as a private, independent, and online piano teacher not associated or beholden to any school or standard of teaching. Teaching styles naturally differ from piano teacher to piano teacher, and aptness in the application of online technologies varies from student to student. This study is designed to address one teacher with one cohort of students and is not necessarily generalizable to the larger population.

The materials students will need are a computer, an internet connection, a video recording device, and a piano or electric keyboard. The course content will be administered through the LearnWorlds online teaching platform. On this platform, PDF worksheets, videos, music, and quizzes will be uploaded for students to access and download. Within the platform, students will also use a discussion forum to communicate with each other and the teacher when it is required.

Students will log in to LearnWorlds with their own private username and password, keeping their information and work safe and secure. Most of the work and learning will be accomplished through this platform. These include video lessons that will be watched on the platform and quizzes that will be taken on it. Worksheets will be downloaded from the platform, filled in, and submitted via email to the teacher. Students will also upload video performances to YouTube to be assessed by the teacher and critiqued by fellow students. Students should practice roughly twenty minutes per day to keep pace with the content.

The course is split into twenty-four weeks and is modeled loosely on the rhythm of work and interaction in a typical online graduate course with Liberty University in Lynchburg, VA.

This course extends for a full school year. This includes twelve weeks in the Fall semester from roughly September through December and twelve in the Spring semester from roughly January to May. Exact dates may vary to account for holidays and school breaks.

Students learn concepts in two-week modules. They watch a video at the beginning of the two-week section that presents the content to be interacted with during the module.[3] This video explains what students need to understand to be able to play their assigned pieces and complete their worksheet(s) and quiz for that module. The students' work in both practicing their songs and filling out the worksheets and quizzes will be assessed at regular intervals, typically every one to two weeks.[4]

Worksheets covering aspects of music theory will be due at the end of the first week and formatively assessed to make sure students understand the content thoroughly. After they receive feedback, they can then correct their understanding of the content if need be. By the end of the following week, they will take a quiz as a summative assessment on the same content to see how thoroughly they understand that module's content.[5] This pattern of content presentation to content practice and work over the module's two-week period to content assessment will be repeated in each two-week module. Modules later in the course will also integrate composition, which is the last and highest level of learning in Bloom's taxonomy.[6]

Concerning performances, they will be required to upload to YouTube a recording of themselves performing their piece(s) by the end of the first week so the teacher and fellow students can comment on the video. They will give feedback on what the performing student is

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[3] See Appendix E for a sample video lesson.

[4] See Appendix D: Design Chart.

[5] Nilson, *Teaching at its Best,* 289-302.

[6] See Appendix H for sample assessments.

doing well and how to play the piece(s) better. This gives students an opportunity to use their new knowledge to evaluate music. This falls into the category of "evaluation" in Bloom's taxonomy. Students will then continue refining the piece(s) and upload a second video for a final summative assessment by the teacher only. Both the formative and summative assessments will assess the practical implementation of that module's content in the student's performances.

In each two-week module, students are required to inform the teacher concerning what they find difficult or easy about that module's content. This will allow the teacher to fine-tune the curriculum as the course is going on, so as to meet the specific needs of that specific cohort of students. A survey pertaining to what students felt was positive, negative, easy, difficult, or any other input they may have will be administered following the completion of the course to gain valuable insight into how to refine the curriculum further.

In summary, to explain this curriculum within Bloom's framework, each module or two-week section will introduce students to a concept or piece of *knowledge* they must *remember* and *understand*. The worksheets and pieces serve to help them *apply* and *analyze* this knowledge in various ways. They are then asked to *evaluate* their fellow student's work. And lastly, in later lessons in the course, they are required to *create* music of their own with what they have learned. All of this is meant to provide an enriching experience of piano instruction.

The course covers most of what a typical beginner piano method book covers.[7] It should be noted, however, that students of any instrument vary in their natural abilities to understand and excel in the understanding of music theory and performance. Though two students may put forth equal amounts of effort in learning the content, it is almost certain that one will move more

[7] Nancy Faber and Randall Faber, *Piano Adventures: Lesson Book, Primer Level,* (Ann Arbor, MI: Dovetree Productions, Inc., 2011); Willard A. Palmer, et al., *Alfred's Basic Piano Course: Lesson Book Level 1A (Alfred's Basic Piano Library), 3rd Ed.,* (Van Nuys, CA: Alfred Music, 1999).

quickly through the content than another. It is important, therefore, to differentiate the instruction, challenging students who move more quickly through the material and accommodating those who move more slowly. Considering this, only one song is required to be recorded and assessed but multiple songs are provided in each module for students who want to challenge themselves to do more.[8]

Participants and Settings

The group for which this curriculum is designed are students ages 13-18 with internet access. This is due to the higher level of independence, technological understanding, and self-motivation students must have to follow through with an online course like this one. Students will not have a teacher in front of them in real time giving them immediate feedback or motivation, which may be needed for younger students.

Students should possess reasonable competence in using email, viewing, and uploading videos on a video platform like YouTube, downloading and uploading material, and navigating the online course platform on LearnWorlds.com. Students must also be competent English speakers; however, the population is not limited to English-speaking countries. The cohort size will include roughly fifteen to twenty students. Ideally, the cohort size will include an equal number of male and female participants.

Substance of Assessments

Students will submit worksheets every other week addressing various aspects of beginner piano and music theory. These worksheets will be assessed within twenty-four hours by the teacher with feedback given back to the student in that same period. Each worksheet will assess

[8] Sally M. Reis and Joseph S. Renzulli, "The Five Dimensions of Differentiation," *International Journal for Talent Development and Creativity* 6, no. 1 (August/December 2018), 87.

content accessed by students through the assigned videos for the relevant module. Recorded student performances will also be turned in every week and assessed for accuracy according to an objective rubric.

The content of each new video will build on the content of the previous video. Furthermore, songs will progress from easier pieces to those that are more difficult, incorporating the new content taught in the videos. The aim will be to allow students to master the content of one module that can then be further developed in the following module. Regelski states that there is a "need for each "stage" of a *progressive sequence* of learning to be "'mastered'… before proceeding to the next step."[9]

The worksheets and quizzes will incorporate a variety of assessment tools. These will include multiple choice, matching, and short answers. Questions requiring a dichotomous response will be avoided. This is due to the high probability of guessing.[10] Recorded student performances will also be submitted and assessed for accuracy according to an objective rubric.

Final performances at the end of each module will be assessed at an ordinal level with each level measuring a student's mastery of a given piece based on the accuracy of rhythm, dynamics, and notation. Greater weight will be given to the correct use of notation. After this, rhythm and then dynamics will be assessed with lesser weights. This is due to the greater importance generally inherent in piano performance of playing the right notes with the correct note durations in comparison to playing music with the correct dynamic. Because this is a beginner class, more advanced elements of music like the legato, the staccato, the accent, and other elements will not be assessed.

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[9] Regelski, *General Music in Grades 4-8,* 63.

[10] Nilson, *Teaching at its Best,* 292.

Virtual Assistant Teacher

One disadvantage of an online course is the inability of a teacher to respond in real-time to student questions or concerns. The ease of a back-and-forth dialogue between student and teacher is complicated by the email format of communication inherent in an asynchronous course like the one laid out here. In a study that surveyed 205 students about their experience of online learning during the Covid 19 Pandemic in Vietnam, around 56% of students cited lack of interaction with instructors as a disadvantage.[11] To mitigate this disadvantage in the online setting, this curriculum will be implemented with an accompanying custom GPT specifically designed to assist students in understanding the material in this curriculum. A GPT, or generative pre-trained transformer, is a natural language processing (NLP) computer model that, when well-trained, can answer student questions related to the course immediately as a kind of chatbot.

There may be some confusion in understanding how such a GPT would be implemented. Some of the most well-known NLP's are general-purpose models like ChatGPT or Bard. These models are not tailored or fine-tuned to give answers on one specific subject area, like music or some other educational field, in a way that would most benefit a student of that subject. Because of this, some educators are concerned that these tools might give the right answer too quickly to students without helping them learn the material or worse, give the wrong answer to student queries. For this project, however, a custom GPT will be created specifically for this curriculum via ChatGPT's Custom GPT Creator. The custom GPT for this project will be fine-tuned to give answers that will assist a student in understanding the content, gradually guiding them to the answer they are looking for and addressing their concerns without cutting the learning process short.

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[11] Doan Thi Hue Dung, "The Advantages and Disadvantages of Virtual Learning," *IOSR Journal of Research & Method in Education (IOSR-JRME)* 10, no. 3 Ser. V (May-June 2020), 47.

An example of this may be when a student struggles recognizing what letter a space note is in the Treble Clef of their sheet music. The student may ask the custom GPT, either via text or verbally, what the space note right above the first line in the staff is. The custom GPT would be fine-tuned to not give them the answer immediately but rather ask them if they remember what acronym might be helpful to figure it out. If they cannot remember, the custom GPT may remind them of an acronym that could help them remember. In this way, the student would not only learn what the note is but also learn how to discover what other notes are, gaining knowledge that will assist them in reading music when no one is immediately available to assist them.

The custom GPT will be created via OpenAI's GPT Creator on the ChatGPT online platform. The custom GPT can be thought of as a model built on top of the foundation of ChatGPT. What this means is that the teacher can essentially create the custom GPT by explaining to ChatGPT in plain English how the custom GPT should work. This includes explaining to ChatGPT how the custom GPT should answer questions, uploading a PDF file of the curriculum design, and giving the custom GPT links to articles, videos, and other sites that would help inform it or that students can be sent to. This process of working with the custom GPT to make sure it works exactly as intended takes time and requires a lot of "fine-tuning."

An added advantage of using a custom GPT is that it can help students overcome what Bloom called "The 2 Sigma Problem."[12] Bloom outlined the challenge of trying to find a method of group teaching that could be as effective as one-on-one tutoring. The average student in a private tutoring setting tends to do exceptionally better academically than the student in group instruction setting. A custom GPT, while not capable of replacing the in-person teacher in every

[12] Benjamin Bloom, "The 2 Sigma Problem: The Search for Methods of Group Instruction as Effective as On-to-One Tutoring," *Educational Researcher* 3, Issue 6 (June 1984), 4-5.

respect, has the potential to be a great benefit to online students because it can mimic the one-on-one tutoring setting most beneficial for students.[13]

[13] Sal Khan, "How AI Could Save (Not Destroy) Education," *Youtube*, May 1, 2023, https://youtu.be/hJP5GqnTrNo?si=M3ScvsAHHjxvhkDQ.

Chapter Four: Research Findings

Looking into the relevant literature, certain themes emerged from the research. First, there is a desire among many families and school districts to educate students online or virtually. However, because these kinds of schools and methods of teaching are expanding so rapidly, the quality of education is substandard in comparison to the traditional in-person classroom. In forming this curriculum, it was important to address this problem. Considering this, one priority was to accurately apply Bloom's framework to each module so that students could interact with the content deeply, comprehensively, and in a meaningful way. One can see this when looking more closely at an individual module. For example, week 13-14 focuses on basic time signatures in music. Students learn about the concept of time signatures via a video which allows them to be able to *recognize* what a time signature looks like and means. Students then express their *understanding* of the concept and *apply* their knowledge by filling in a worksheet. In this worksheet, students must complete incomplete measures that have an insufficient number of notes. They may fill these measures in with any kinds of notes they choose so long as the measure is filled correctly with the right number of beats. This encourages them to *analyze* each measure and determine how notes relate to time signatures.

From the research, I also gathered that a comprehensive music education involves the actual making of music and the gradual progression of learning from one mastered concept to a new concept. Considering this, students learn at least one song and post a recording of their song to a discussion group where they and other students *evaluate* each other's performances based on the accuracy of the expression of the correct time signatures within the pieces they play. Students offer encouragement and critiques, making judgments based on the concepts learned in the module. At this point in the course, students do not engage in the final mode of Bloom's

framework: *creating* or *composing*. However, students do create their own compositions in weeks 19-24.[1]

This course is, to some extent, experimental. Considering this, much information about how effective it is will be gathered during and after its implementation in a mixed method fashion. A pre-test will be administered to students before teaching the curriculum to assess their knowledge of music theory, notation, and other issues related to reading sheet music. The purpose of this test is to assess whether students are truly beginners with little to no knowledge of music theory or piano performance. The pre-test will cover everything taught during the class. A post-test will be administered to students after they have progressed through the course. The post-test will address the same content and have the same questions as the pre-test. Students will be allowed thirty minutes to complete each test.

The pre-test and post-test will incorporate a variety of assessment tools. These will include multiple choice, matching, and short answers. Questions requiring a dichotomous response will be avoided. This is due to the high probability of students guessing the answer with these sorts of questions.[2] This will provide quantitative data on the academic outcome of this course to assess how successful the curriculum is.

A survey will also be administered after the course completion to assess student attitudes towards the experience of learning the piano through this method of teaching. Part of the rationale for this curriculum is the desire on the part of many parents to educate their children outside the traditional school setting, so the negative or positive attitudes they or their children have toward this course are important. Using a continuous scale from “strongly disagree” to

[1] See Appendix A.

[2] Nilson, *Teaching at its Best,* 292.

"strongly agree," students will answer questions that assess student attitudes toward the experience of learning the piano in an online and asynchronous manner .[3] Surveys will be anonymous to avoid bias and will be administered online via a survey platform. Students will also be required to explain to the teacher what is easy or difficult about each module's content. This will provide qualitative data on student perceptions of the curriculum.

It is important, as well, that this course be easier for the teacher to implement than teaching in a classroom or private setting. One of the intents of this asynchronous and online course is that it should allow for the teacher to spend less time responding to and interacting with students. Because of this, it should allow the teacher to instruct more students through this course than they could otherwise in a traditional private setting or in-person group class. Quantitative data will be collected and recorded on how much time the teacher spends each week facilitating this curriculum to assess whether this is really the case.

[3] Creswell and Creswell, *Research Design*, 216.

Chapter Five: Discussion/Context

Advantages, Disadvantages, and Limitations

In an online curriculum like the one presented here, it is important to take advantage of the strengths of the online method of teaching while mitigating the weaknesses. One strength of asynchronous instruction is the opportunity for students to engage with the material in their own time and as often as they desire. Lectures are not limited to a single hour in a classroom. This allows for deep cognitive engagement with the concepts in each module during the week.

The use of a discussion forum also allows for a deeper engagement with the material. In a live classroom setting, students may feel they need to give quick, superficial answers or ask questions they are not comfortable putting forward. Writing allows students to think through what they want to express in their work. The same goes for their performance recordings. They can re-record any number of performances to make sure they post the best one for the teacher and fellow students to evaluate. This removes the pressure of performing live from students and allows them to put their best work forward for feedback.

Another advantage of using this online method of teaching is the potential to provide a structured curriculum with guidance from a responsive teacher that is also inexpensive because it leverages platforms like YouTube and a learning management system like LearnWorlds.com. It is common in the United States for younger students to use platforms like YouTube to learn about various subjects for free; however, this method of learning can be haphazard and not comprehensive. In other words, students may not learn everything they need know to understand their subject adequately. While not being free, this curriculum leverages tools like YouTube to provide structured, scaffolded, and comprehensive beginner piano instruction module by module. This is provided, ideally, at a much lower cost to students and school districts than in-person

lessons or even synchronous online instruction. This is because, with so much of the teaching off-loaded to these online platforms, the teacher could possibly take on more students and charge a lower price. This teaching method can also connect teachers to students in areas where music education is not available.

A weakness of this kind of curriculum, however, is that students lose the advantage of synchronous instruction. The immediate feedback of a teacher or fellow students can be both helpful and motivating. Students may not feel as isolated in their learning with synchronous instruction as they do with asynchronous instruction. To mitigate this, as was mentioned above, there is a discussion forum where students can evaluate each other's work and interact. Students may contact the teacher via email any time. The teacher will also respond via email and include a short video message. Students also have access to the custom GPT to get immediate answers to their questions. Despite all this, however, there may be many students who simply need synchronous interaction. The method will most likely not be appealing to every student.

Some musical concepts and ways of playing, also, are difficult to teach beginner students via an online curriculum. I anticipate that these difficult concepts will include keeping a steady tempo when playing and using correct rhythm. From my experience teaching students in-person, these are two areas that benefit greatly from having a teacher clap beats and count beats out loud as students play. Rhythm exercises will be demonstrated in a video and students may be able to practice their own piece along with a video performance of the same piece; however, even with this, some students may still struggle or not recognize how they are making mistakes so as to fix them. This may be the case with other concepts as well, which will be discovered when this curriculum is implemented.

Along those same lines, a limitation with this kind of curriculum is that concepts become more complicated and nuanced as students progress in their learning. It may prove difficult to go beyond the content in this course and teach about the accurate shaping of phrases or correct execution of staccatos and legatos, for example, with this online method. These concepts are, for this reason, purposely omitted from this beginner course. I hypothesize that it is not necessarily impossible to teach these and more advanced concepts via an asynchronous and online method. However, the process of teaching may be more involved, and the results may not be as successful as they would be with in-person lessons. Similarly, this kind of curriculum may not be repeatable with other kinds of music instruction like voice or violin where nuance is more important. For these reasons, this is a specifically beginner course that focuses on broader, more basic practices and concepts in specifically piano instruction.

Creating a custom GPT and working with online tools almost exclusively can also be problematic for teachers attempting to create their own curriculum using a similar method to the one outlined in this paper. Uploading video and PDF files might prove too complicated. Fine-tuning a custom GPT can be time-consuming and tedious. It will most likely need to be fine-tuned even more after students start using it. Teachers most likely cannot foresee every use case (or "mis-use" case) a student might have with it.

Lastly, students may have technological difficulties on their end that cannot be foreseen by the teacher. A student's internet connection may be unreliable. The quality of a student's microphone or recording equipment may not be high enough. The lower quality of their instrument may not allow for any kind of dynamic range when playing. These problems may need to be worked around; it is also possible that certain aspects of the curriculum for particular students may need to be dropped altogether.

Variations on this Curriculum

This curriculum represents the most suitable kind of asynchronous and online curriculum for the author of this paper specifically. However, there are two different ways it can be altered to suit teachers who may be interested in pursuing something like this kind of method. Aspects of this curriculum, for example, may be helpful for teachers who teach in synchronous online settings or in traditional classrooms. Teachers can use LearnWorlds or a similar learning management system to give students access to content during the week. This can help students stay motivated and engaged outside the classroom, as well as make it easier for students to do classroom work at home. Additionally, if certain lessons can be offloaded to videos, this could save teachers valuable time in the classroom to focus on group activities or other kinds of activities that benefit from the classroom environment.

It is possible, as well, for teachers who prefer this method to experiment with teaching younger ages. Two-week modules could be extended to three or four weeks with a more granular dispensing of the content. Especially for younger elementary students, however, this will require something more akin to a Suzuki model of teaching where parents are more involved. It is reasonable to assume that parents would at least need to actively learn how to play the piano alongside their children so as to help them in their practice.

The curriculum for this project was originally created as a 12-week course with one module per week; however, the course was expanded to 24 weeks with one module spread over two weeks. I made this change because, on further reflection, I recognized that the pace at which my private in-person piano students typically learn the content of this course takes more time.

Given the added complexity of technology in this course, students need ample time to achieve mastery of the content in each module before continuing to the next.[1]

Conclusion

Online education as not a new phenomenon in higher education. Among younger students, however, the model of asynchronous instruction is not as prevalent. Students coming up through school systems, especially in developed countries, are increasingly considered "digital natives." They understand and use social media and online tools in their daily lives. Piano instruction can be expensive for families and difficult to maintain in school environments. These two realities make it important for educators to experiment with rapidly changing technologies to both meet students "where they are" digitally and make piano instruction more financially accessible for the average family.

It is also important not to use technology indiscriminately, assuming that any use of it will necessarily have a positive impact on students. Considering this, a pre-test before the course begins and a post-test after students have completed it will be administered to assess how effective the curriculum has been in its implementation. A survey will also be administered after the course to assess student attitudes. These will give valuable feedback concerning where the curriculum needs to change and how.

There are many questions that are important to answer after the implementation of this curriculum. What are teacher and student perceptions of this method of teaching? Where are they positive or negative? What real or perceived obstacles hinder students from learning to their fullest potential when learning with exclusively online tools in this asynchronous way? How much measurable progress in terms of student performance and music theory understanding can

[1] For other changes, see section "Evaluation and Reflection" in Appendix G.

be made by students using this method? Is the pacing of the curriculum too quick? Is it too slow? How do the many variables at play in a curriculum like this interact with each other? This curriculum attempts to address these issues considering the current literature; however, the real practical deficiencies and strengths cannot be fully assessed until the students and teacher go through the course together.

Lastly, with the advent of large language models like ChatGPT, education itself may be on the brink of major reform. Further study should be done to see how effective this tool can be in shifting the load of teaching off the teacher and onto chatbots. With custom GPTs, students potentially have a teacher available to them twenty-four hours a day, seven days a week. Studies should be conducted to discover the most effective ways to integrate this technology into piano instruction.

Appendix A: Conceptualization of the Curriculum

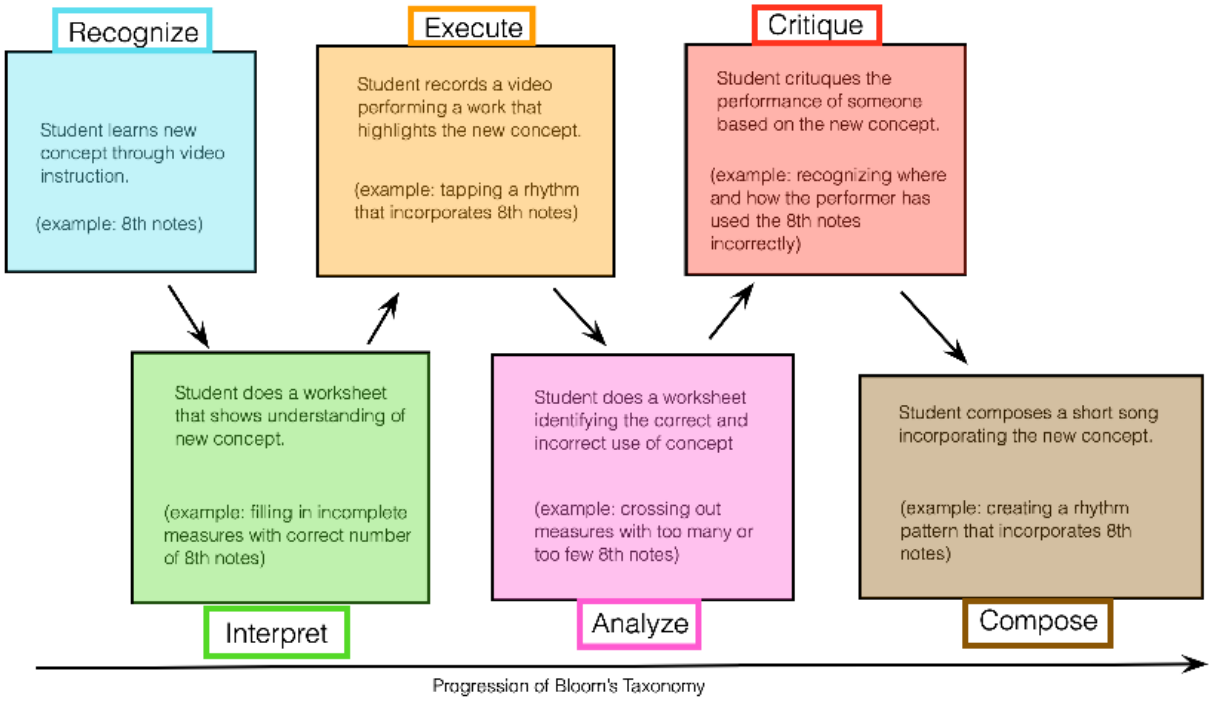


Figure 1.1 “Conceptualization of an Asynchronous Online Curriculum,” Picture by Jonathan Holowaty and Benjamin S. Bloom, August 6, 2022. The “Compose” section may not be included in every module’s lesson.

Appendix B: Syllabus

COURSE SYLLABUS

PIANO BASICS I: AN ONLINE CURRICULUM

COURSE DESCRIPTION
A beginning piano course that will give students the basic skills to be able to understand and play easy piano sheet music in C position.

RATIONALE
Being able to play piano music, either the compositions of others or one's own, is a skill that can emotionally enrich a student's entire life. The piano, as a starting instrument, is a very accessible instrument to learn music on, being easy for even young students to engage with. In addition to this, learning music on the piano can be much more visually intuitive than learning music on other instruments, and it can help students see how multiple notes work together.

I. PREREQUISITES

A. Students must be familiar with the letters of the alphabet.

II. ALL RESOURCES ACCESSED THROUGH LEARNWORLDS.COM

III. ADDITIONAL MATERIALS FOR LEARNING

A. Computer with basic audio/video output equipment
B. Internet access
C. Printer
D. Piano or electronic keyboard

IV. MEASURABLE LEARNING OUTCOMES

Upon successful completion of this course, the student will be able to:

A. Use finger numbers to play music.

B. Recognize notes in C Position on the Treble and Bass clefs.

C. Demonstrate the purpose of basic rests and time signatures in sheet music.

D. Apply dynamics to piano playing.

E. Compose an original composition.

V. COURSE REQUIREMENTS AND ASSIGNMENTS

A. Quizzes (10)

Each quiz will contain questions related to the subject matter explored in that given module. Quizzes will be open-book and contain 10 questions.

B. Performance (20)

Students will record themselves performing at least one song twice for each module which they will upload as an unlisted video to YouTube.

C. Critique (10)

Each student will critique two other students' performances for that module, pointing out one positive aspect of their performance and one area that could use improvement.

D. Worksheets (10)

Each worksheet will relate to that module's subject matter within which it is assigned. Students will photograph and email a picture of their homework assignment to the teacher's email.

E. Final Project

Each student will compose their own four-measure song using the notes and dynamics learned within the course.

VI. COURSE GRADING AND POLICIES

A. Points

Quizzes (10 at 20 pts each)	200
Performance (20 at 15 pts each)	300
Critique (10 at 10 pts each)	100
Worksheets (10 at 20 pts each)	200
Final Project	200
Total:	1000

B. Scale

A = 940–1010 A- = 920–939 B+ = 900–919 B = 860–899 B- = 840–859

C+ = 820–839 C = 780–819 C- = 760–779 D+ = 740–759 D = 700–739

D- = 680–699 F = 0–679

C. Late Assignment Policy

Each assignment should be turned in by the due date. If an assignment (aside from the Final Project) is turned in up to one week late, there will be a 10% deduction. Assignments turned in after one week will receive half credit till the end of the course. *The Final Project must be turned in on time, unless other arrangements have been made with the teacher.*

Appendix C: Analysis Chart

PART I: CURRICULUM INFORMATION

Teacher: Jonathan Holowaty	**Course:** Piano Basics I: An Online Curriculum
Required Resources for Class: All material accessed through Learnworlds.com	
Problem to be Addressed	
The student must demonstrate the ability to read and play beginner sheet music in C Position with dynamic range.	
Learners and their Characteristics	
Students ages 13-18, English speaking, able to identify the first 7 letters of the English alphabet	
Objective	
The student will be able to accurately read and play beginner sheet music.	
Delivery Options	
This is an asynchronous and online course involving video lessons and online assignments. Students will upload performance videos, take online quizzes, and turn in assignments typically every other week.	
Pedagogical Considerations	
The course will address good form and technique when playing the piano, how to read basic notation on the grand staff, and how to implement basic dynamics.	
Applicable Learning Theory Active learning theory will be applied in this course as students practice songs learned in each lesson, compose their own music, and critique performances through an online platform. Learning piano necessitates actively playing and engaging with music.	

Scholarly Source for Part I: Cynthia J. Brame, *Active Learning*, 2016, Vanderbilt University Center for Teaching. https://cft.vanderbilt.edu/active-learning/.

Part II: Learning Outcomes

Learning Outcomes Scholarly Source for Part II: James Lyke, Geoffrey Haydon, and Catherine Rollin, *Creative Piano Teaching, 4th Ed.*, Champaign, IL: Stipes Publishing L.L.C., 2011. **At the end of the course, the student will be able to:**
1. Name and play the letter of each note on a piece of sheet music.
2. Explain and express the dynamics of a given piece of music.
3. Competently play one song from each module.
4. Compose an original composition.

Appendix D: Design Chart

Curriculum Author: Jonathan Holowaty	Piano Basics 1: An Online Curriculum		
Concept Statement: To successfully read and play beginner piano sheet music.			
Learning Outcomes	**Content**	**Learning/Training Activity**	**Assessment**
1. Use finger numbers to play music.	Module 1 (Weeks 1-2) - **Video –** *Finger Numbers* - **Content –** Recognize which numbers correspond to each finger on each hand in real time while playing music.	Module 1 -Activity: play *A Little Conversation* -Activity: play *Jump Around* -Activity: play *Step Step Step* -Activity: play *Sunny Day* -Activity: play *Two Hands!* -Activity: play *Down Up Down Up* -Activity: Sketch Hands and Number Fingers (Worksheet 1) -Activity: pre-recorded Lecture -Activity: two performances of one assigned song. -Activity: post two responses to classmates' recordings. -Activity: email text/video to	Module 1 -Assessment – Praxis: First rough performance of song, then accurate performance of song. -Assessment – Formative: Worksheet 1 -Assessment – Summative: **Quiz 1**

		teacher explaining one difficult and one easy thing about that module's content.	
	Module 2 (Weeks 3-4) -**Video –** *Quarter, Half, and Whole Notes* -**Content** – Demonstrate understanding of correct rhythm using quarter, half, and whole notes.	Module 2 -Activity: count and clap rhythmic patterns -Activity: count and play rhythmic patterns -Activities: play songs 7-10 (single-note rhythm pieces) -Activity: pre-recorded Lecture -Activity: post two performances of one assigned rhythm piece. -Activity: post two responses to fellow classmates' recordings. -Activity: email text/video to teacher explaining one difficult and one easy thing about that module's content.	Module 2 -Assessment – Praxis: First rough performance of song, then accurate performance of song. -Assessment – Summative: **Quiz 2**
	Module 3 (Weeks 5-6) -**Video –** *Putting it All Together – Part 1* -**Content –** Practice playing music employing both correct rhythm and finger numbers.	Module 3 -Activity: count and clap rhythmic patterns -Activities: play songs 11-15 (multiple notes with varied rhythms by reading finger numbers). -Activity: pre-recorded lecture.	Module 3 -Assessment – Praxis: First rough performance of song, then accurate performance of song. -Assessment – Summative: **Quiz 3**

		-Activity: post two performances of one assigned song. -Activity: post two responses to fellow classmates' recordings. -Activity: email text/video to teacher explaining one difficult and one easy thing about that module's content.	
2. Recognize notes on the Treble and Bass clefs.	Module 4 (Weeks 7-8) -**Video –** *Recognizing Notes on the Treble Clef* -**Content –** Demonstrate an understanding of where the letter notes are in the treble clef from Middle C to Treble G.	Module 4 -Activity: name the notes on the Treble Clef (Worksheet 2). -Activities: play songs 16-20 (varied rhythms involving notes in the Treble Clef). -Activity: pre-recorded lecture. -Activity: post two performances of one assigned song. -Activity: post two responses to fellow classmates' recordings. -Activity: email text/video to teacher explaining one difficult and one easy thing about that module's content.	Module 4 -Assessment – Praxis: First rough performance of song, then accurate performance of song. -Assessment – Formative: Worksheet 2 -Assessment – Summative: **Quiz 4**

	Module 5 (Weeks 9-10) -**Video –** *Recognizing Notes in the Bass Clef* -**Content –** Demonstrate an understanding of where the letter notes are in the bass clef from Bass C up to Middle G.	Module 5 -Activity: name the notes on the Bass Clef (Worksheet 3). -Activities: play songs 21-25 (varied rhythms involving notes in the Bass Clef). -Activity: pre-recorded lecture. -Activity: post two performances of one assigned song. -Activity: post two responses to fellow classmates' recordings. -Activity: email text/video to teacher explaining one difficult and one easy thing about that module's content.	Module 5 -Assessment – Praxis: First rough performance of song, then accurate performance of song. -Assessment – Formative: Worksheet 3 -Assessment – Summative: **Quiz 5**
	Module 6 (Weeks 11-12) -**Video –** *Putting it all Together – Part 2* -**Content –** Demonstrate the ability to read a simple but complete piece of sheet music.	Module 6 -Activity: name the notes on the Bass and Treble Clef. (Worksheet 4). -Activities: play songs 26-30 (complete songs involving the Bass and Treble Clef notes in C Position). -Activity: pre-recorded lecture. -Activity: post two performances of one assigned song.	Module 6 -Assessment – Praxis: First rough performance of song, then accurate performance of song. -Assessment – Formative: Worksheet 4 -Assessment – Summative: **Quiz 6**

		-Activity: post two responses to fellow classmates' recordings. -Activity: email text/video to teacher explaining one difficult and one easy thing about that module's content.	
3. Demonstrate the purpose of basic rests and time signatures in sheet music.	Module 7 (Weeks 13-14) -**Video –** *Time Signatures and Measures* -**Content –** Explain the purpose of time signatures and measures. Module 8 (Weeks 15-16) -**Video –** *Rests* -**Content –** Demonstrate an understanding of quarter, half, and whole rests.	Module 7 -Activity: fill in empty measures with correct amount of notes based on the time signature (Worksheet 5). -Activities: play songs 31-35. -Activity: pre-recorded lecture. -Activity: post two performances of one assigned song. -Activity: post two responses to fellow classmates' recordings. -Activity: email text/video to teacher explaining one difficult and one easy thing about that module's content. Module 8 -Activity: fill in a series of incomplete measures with the correct rest to fill in the measure based on the	Module 7 -Assessment – Praxis: First rough performance of song, then accurate performance of song. -Assessment – Formative: Worksheet 5 -Assessment – Summative: **Quiz 7** Module 8 -Assessment – Praxis:

		given time signature (Worksheet 6). -Activites: play songs 36-40. -Activity: pre-recorded lecture. -Activity: post two performances of one assigned song. -Activity: post two responses to fellow classmates' recordings. -Activity: email text/video to teacher explaining one difficult and one easy thing about that module's content.	First rough performance of song, then accurate performance of song. -Assessment – Formative: Worksheet 6 -Assessment – Summative: **Quiz 8**
4. Apply dynamics to piano playing.	Module 9 (Weeks 17-18) -**Video –** *Forte, Piano, and Everything in Between* **-Content –** Demonstrate an understanding of *ff*, *f*, *mf*, *mp*, *p*, and *pp* in piano performance, as well as *Crescendo* and *Diminuendo*.	Module 9 -Activity: label *ff* to *pp* in order from loudest to softest and label given sound events as instances of crescendo or diminuendo. (Worksheet 7) -Activities: play Songs 41-45. -Activity: pre-recorded lecture. -Activity: post two performances of one assigned song. -Activity: post two responses to fellow classmates' recordings. -Activity: email text/video to	Module 9 -Assessment – Praxis: . First rough performance of song, then accurate performance of song. -Assessment – Formative: Worksheet 7 -Assessment – Summative: Quiz 9

		teacher explaining one difficult and one easy thing about that module's content.	
5. Compose original compositions.	Module 10 (Weeks 19-20) -**Video –** *Melody* -**Content –** Compose a melody.	Module 10 -Activity: compose a melody in the Treble Clef with a given rhythm. (Worksheet 8) -Activity: pre-recorded lecture. -Activity: post two performances of composed melody. -Activity: post two responses to fellow classmates' recordings. -Activity: name a song with a favorite melody and explain why it is enjoyable. -Activity: email text/video to teacher explaining one difficult and one easy thing about that module's content.	Module 10 -Assessment – Praxis: First rough performance of song, then accurate performance of song. -Assessment – Formative: Worksheet 8 Assignment: melody composition.
	Module 11 (Weeks 21-22) -**Video –** *Harmony* -**Content –** Compose a chord progression.	Module 11 -Activity: compose a chord progression in the Treble Clef with a given rhythm. (Worksheet 9) -Activity: pre-recorded lecture.	Module 11 Praxis: first rough performance of song, then accurate performance of song. -Assessment – Formative: Worksheet 9

		-Activity: post a performance of composed melody. -Activity: post two responses to fellow classmates' recordings. -Activity: name a song with a favorite melody and explain why it is enjoyable. -Activity: email text/video to teacher explaining one difficult and one easy thing about that module's content.	-Assignment: harmony composition.
	Module 12 (Weeks 23-24) **-Video –** *Pulling it all Together – Part 3* **-Content –** Compose original four-measure song including in it an element of each module's content.	Module 12 -Activity: perform original compositions of classmates from previous module. -Activity: review of entire course. (Worksheet 10) -Activity: pre-recorded Lecture. -Activity: post a performance of final project song. -Activity: post two responses to fellow classmates' recordings. -Activity: email teacher text/video explaining what was difficult/helpful about the course and what was learned.	Module 12 -Assessment – Praxis: First rough performance of song, then accurate performance of song. -Assessment – Worksheet 10 -Assessment – Final Project -Summative Assessment **Quiz 10**

II. Learning outcomes according to Bloom's Taxonomy.

Learning Outcomes	Rational for Sequence
1. Use finger numbers to play music.	Since piano playing is, by its nature, praxial, every outcome in this course requires at least knowledge, comprehension, and application of the content being covered. Each module requires students to perform music, but with each module, new elements are added to the music performed. At this most fundamental level, students learn and perform songs with finger numbers and 1, 2 and 4-beat notes.
2. Recognize notes on the Treble and Bass clefs.	This stage of the course adds letter notation in the Treble and Bass Clefs in C Position to pieces performed by students.
3. Explain the purpose of basic rests and time signatures in sheet music.	This stage allows for students to perform songs with the added elements of rests and gives them an understanding of time signatures.
4. Demonstrate the ability to incorporate dynamics in piano playing.	This stage adds the elements of dynamics to songs.
5. Compose original compositions.	At this stage of the course, students will have sufficient practice and knowledge of the content to create their own original four-measure compositions.

Appendix E: Development Chart for Module 9

This lesson falls within Module 9 during the fourth unit. The learning objective for the unit is as follows: "Demonstrate the ability to incorporate dynamics in piano playing."

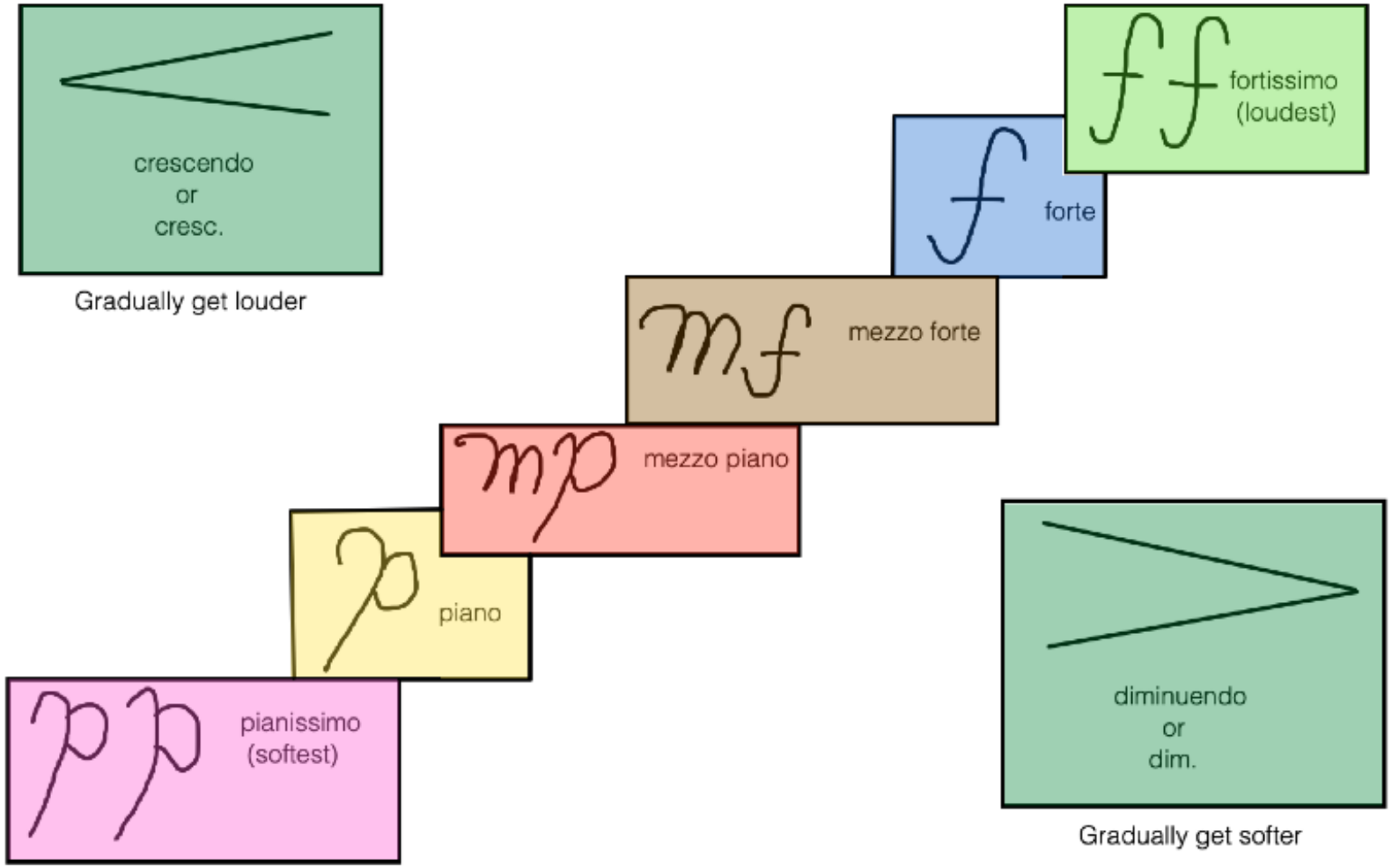
Teacher: Jonathan Holowaty	Piano Basics 1: An Online Curriculum
Expository[52]	
Video: Listen to how I play this piece. [play theme from "In the Hall of the Mountain King" without any dynamic changes] Now listen to how I play the same piece differently. [play the same theme but with dynamic change] Do you hear the difference? One version sounds a little boring. The other sounds vibrant and alive. Once you know how to play basic sheet music, it can be a lot of fun to spice it up by getting louder or softer in different parts of a piece to make it more interesting and expressive. In this module we will be learning how to recognize and express various degrees of loudness and softness in sheet music. This is a layer of musical expression we will lay on top of what you have already learned about: quarter, half and whole notes, letter notes in the Treble and Bass Clefs, accurate understanding of time signatures and the use of rests. In sheet music, you will often see a little "p" or "f" written in. These refer to the words "piano" and "forte." In music, "piano" means "soft", and "forte" means "strongly." Generally speaking, when you see a "p" in music, every note written after that "p" should be played softly. In the same way, whenever you see an "f" written in the music, every note after that "f" should be played loudly. Try playing Song 41 in the PDF resources section for this lesson. There is a "p" written in the beginning. Try playing that part softly. When you get to the "f" in the music, begin playing the notes loudly. Playing a piece "piano" or "forte" is a good start, but composers often want to have more variation in their music. They may want one part of a song soft but not as soft as another part. Or perhaps they will want one section loud but another section even louder. To accomplish this, they use a greater variety of dynamic markings than just "p" and "f" to indicate this. "Pianissimo," or "pp" as it is seen in music, indicates a section of music that should be played very softly. "Piano", or "p" (which I have already talked about) is the next level up, being just a bit louder. "Mezzo piano" or "mp" is a little louder, indicating that a section of music should be played only a little softly. "Mezzo forte" or "mf" is the next loudest and refers to a section that should be played slightly loud.	

[52] A verbal description for students of the new content about to be covered.

"Forte" or "f" indicates a section that should be played good and loud. And lastly, in piano music, "fortissimo" or "ff" essentially indicates that a section should be played very loudly. With this knowledge, try playing Song 42 in the PDF resources for this lesson. Notice that the song begins with the softest dynamic in this lesson, "pp," and progresses through each of the other dynamics gradually getting louder as it goes until it ends at "ff." Sometimes composers want a performer to gradually get louder or gradually get softer over a few measures or lines of music. Instead of writing every dynamic, one after another, in order to indicate this, they use what we call "crescendo" and "diminuendo" markings. They work the same way the other dynamics mentioned work. If you see a "crescendo" or its abbreviation, "cresc." in music, it means you must start getting gradually louder and louder from then on until you see a different dynamic marking. Similarly, if you see a "diminuendo" or its abbreviation, "dim.", written out in a piece of music, it means you must start getting gradually softer and softer in that section of music until you see a different dynamic marking. Crescendo and diminuendo can also be signified by two lines connected at one point and gradually horizontally drawn out away from each other over a few measures (which would indicate a crescendo) or two lines starting away from each other and drawn horizontally gradually closer to each other. Refer to the graphic accompanying this lesson to get a clearer idea of what I am talking about. For this module, work on and turn in Worksheet 7: Labeling "ff" to "pp" and recognizing "crescendos" and "diminuendos." After I have assessed those and you feel comfortable with what we have learned in this module, you can take the quiz assigned for this module. After playing through songs 41-45, choose one of them to record and post online by the end of this week. Post two responses to fellow classmates' recordings mentioning one great aspect of their performance and one aspect of their performance that might need improvement or change. By Friday of the following week, make sure you record and upload your best performance of the piece or pieces you have chosen to master for this module. Remember that only I will see these final recordings. Try listening to some of your own favorite songs, and try to catch where the song rises to a forte or maybe hushes down to a pianissimo. In the next lesson, we will explore how to weave notes together to create a melody.
Narrative[53]

[53] A description of how I will deliver the content in the video and what students will see.

Video: For each video, I will be sitting on a stool, facing the camera, and explaining the content. As I speak, key concepts or terms will be written out in headings and titles throughout the video. Specifically, for this lesson, those terms will be the dynamic markings and names including “dynamics,” “pp,” “p,” “mp,” “mf,” “f,” “ff,” “pianissimo,” “mezzo piano,” “piano,” “mezzo forte,” “forte,” “crescendo,” (with its accompanying abbreviation and alternate label) “diminuendo,” (with its accompanying abbreviation and alternate label) and “fortissimo.” Attached PDF files of five songs and one worksheet will be made available in the general page for this lesson. The students should expect to gain the ability to recognize and express these mentioned dynamics in a song. In between explaining these different dynamic markings, I will cut to a view of the keyboard and demonstrate the correct expression of these dynamics. After teaching the content, I will point students to the work for the current module and explain that we will discuss the idea of “melody” in the next module.
Graphical Organizer
The graphic organizer below shows the span of dynamics explained in the lesson. They are placed in order from softest to loudest showing both the marking as it would be seen in sheet music and the term for it written out next to that marking. This will provide the student an accessible image of everything I talk about in the video. *New graphic with coloring and cresc./dim. labels.*


crescendo
or
cresc.
Gradually get louder
fortissimo
(loudest)
forte
mezzo forte
mezzo piano
piano
pianissimo
(softest)
diminuendo
or
dim.
Gradually get softer

Gagne's Nine Events of Instruction[54] for Module 9

Instruction Event	Description of how each instructional event will be addressed in this module.
1. Gain attention	The instructor will play a simplified version of Grieg's "In the Hall of the Mountain King" with no dynamic changes. The instructor will then play the song again but with appropriate dynamic changes. This performance will get the attention of students at the beginning, showing them right away how much more rich pieces sound with dynamics. It will also explain to students the value and meaning of the content connecting what they will be learning to the "real world."[55]
2. Inform learners of objectives	The "Gain attention" section leads organically into a "priming" section where students will be informed about what they should be able to accomplish by the end of the lesson – the "*goal…* toward which a student's mental and physical actions are directed."[56] The outcome, in this case, would be the ability to recognize and express the dynamic markings (specifically *pp*, *p*, *mp*, *mf*, *f*, *ff*, *cresc*., and *dim.*) indicated in sheet music.
3. Stimulate recall of prior learning	At the beginning of the video, I will explain that dynamics bring to life what students have already learned: music with accurate notation and rhythm. They will be given the opportunity to incorporate these dynamics while playing at-level sheet music which will *"Give students plenty of opportunities to practice"* before they are graded.[57] Playing sheet music itself will stimulate recall of what they have learned thus far and help students in associating the new information they receive with what they have already learned.
4. Present the content	The content will be presented more generally first, thus providing a kind of scaffolding mid-lesson for what is taught later in the lesson.[58] Only "piano" and

[54] *Gagné's Nine Events of Instruction,* Northern Illinois University Center for innovative Teaching and Learning, (2020), https://www.niu.edu/citl/resources/guides/instructional-guide/gagnes-nine-events-of-instruction.shtml.

[55] Nilson, *Teaching at its Best,* 100.

[56] Regelski, *General Music in Grades 4-8,* 55.

[57] Nilson, *Teaching at its Best,* 101.

[58] David J. Elliot and Marissa Silverman, *Music Matters: A Philosophy of Music Education, 2nd Ed.,* Oxford: Oxford University Press, 2015, 434.

	"forte" will be explained first as "soft" and "loud." Students will be encouraged to recognize and practice these simple dynamics in a piece. After this, more nuanced dynamics will be explained, and students will be given the opportunity to recognize and practice these more varied dynamics in another piece.
5. Guide learning	Students will be immersed in the content with a "*variety of student-active teaching formats and methods*"[59] such as the discussion format and recording of their song outside the video lesson. The video itself is one format: lecture. And they will also be given the opportunity to practice the content within the lesson with the two pieces.
6. Elicit performance (practice)	Because this is an online, asynchronous course, performance cannot be done in real time. Students will, instead, record themselves playing their two pieces and post them on YouTube. In this way, the teacher can assess whether each student has grasped the content. Playing for the instructor and, especially, for fellow classmates provides students the opportunity to experience the "payoff" of their work.[60]
7. Provide feedback	Feedback will be offered both through fellow student comments on video performances and via email from the instructor. Students will be required to post a video of themselves performing a piece which will then be commented on by fellow classmates. They will also be required to email the instructor with comments or concerns about the content. The "*frequent positive feedback"* from fellow students and the instructor every module is helpful.[61]
8. Assess performance	For this lesson, assessment will be done by the teacher after the student has done the work assigned for that module which, in this case, means the worksheet, the recorded performance of at least one piece, and the two comments made about two other students' performances. It is important to have "*many and varied opportunities for graded assessment* so that no single assessment counts too much toward the final grade.*"*[62]

[59] Nilson, *Teaching at its Best,* 100.

[60] Regelski, *General Music in Grades 4-8,* 60.

[61] Nilson, *Teaching at its Best,* 101.

[62] Ibid., 101.

9. Enhance retention and transfer	Students are given two exercises and five songs to use in practicing dynamics. This repetition of recognizing and using dynamics in multiple pieces of music helps with retention. By playing so many pieces, they are given multiple "dress rehearsals," so to speak, in addition to the single piece they are required to record.[63] Students are also encouraged to listen for changes in dynamics in their own favorite music, thus connecting the content to their daily lives.[64]

[63] Regelski, *General Music in Grades 4-8,* 59.

[64] Ibid., 15.

Appendix F: Implementation Chart

Teacher**: Jonathan Holowaty**	Piano Basics 1: An Online Curriculum
Web camera	The teacher cannot express their "*presentations with enthusiasm and energy*" if the student cannot see them![65] A web camera is, therefore, essential to an online course. Lectures must be recorded for students to watch them and learn. An HD web camera is preferred to imply high-quality content and effort on the part of the teacher.
Computer	When it comes to an online class, it is impossible to design your course, let alone "*Design and develop your course with care,*" if there is no computer available to design it on.[66] A computer with recording, composing, word processing, and connection to the internet is essential.
Piano	In music, "*expert models serve as ideals for potential improvement and its rewards.*"[67] A piano teacher should demonstrate for students the ideal they are striving for in each lesson specifically and overall in the entire course. This includes how to sit at a piano and the proper positioning of the hands for a given song.
Background sheet	When teachers show they are putting effort into the course and taking it seriously, this in turn can show students that the course itself was designed and developed "with care." It shows a level of enthusiasm on the part of the content creator.[68] Setting up a background behind the speaker or giving thought to the background in each video instead of letting the camera record whatever might be in the room at the time shows regard for the quality of each video and, by extension, regard for the student.
Lights	When the quality of a video lecture is high, it helps to keep students undistracted. It also helps students see that the teacher is enthusiastic about the class.

[65] Nilson, *Teaching at its Best,* 99.

[66] Ibid., 100.

[67] Regelski, *General Music in Grades 4-8,* 20.

[68] Nilson, *Teaching at its Best,* 99-100.

Condenser Mic	When the quality of a video lecture is high, it helps to keep students undistracted. It also helps students see that the teacher is enthusiastic about the class.[69]

Necessary tasks and rationale

Task	**Rationale for Task**
Print out lecture script	It is important to be conscientious about exactly what is being taught through the video lecture so as not to include unnecessary or redundant information that could be gained through the textbook or through some other medium used in the course.[70]
Set up lighting	When teachers show they are putting effort into the course and taking it seriously, this in turn can show students that the course itself was designed and developed "with care." It shows a level of enthusiasm on the part of the content creator.[71] Three-point lighting is preferred.
Upload sheet music	Multiple songs offered for each lesson provides options for students to discover which song most interests them. They would only choose one out of five or six songs to record and turn in for a grade. This "*Allows students some voice* in determining the course content" which can, in turn, motivate them to learn the material.[72]
Test audio	It is important to eliminate as many distractions as possible. Bad audio can distract students from the "learning process" and hinder their ability to "concentrate on the material."[73] The use of a high-quality mic also adds to the professionalism of the course.

[69] Nilson, *Teaching at its Best,* 99-100.

[70] Ibid., 142.

[71] Ibid., 99-100.

[72] Ibid., 100.

[73] Ibid., 4.

Upload graphic	Students learn best when they are taught in "multiple modalities." Instead of relying entirely on lecture, a graphic can help display the content in a different way.[74] Graphics, especially, are much easier for the brain to grasp and process.[75]
Edit recording	Students are only able to concentrate for a small amount of time before concentration drops off.[76] Editing the video lecture portion into a shorter, quicker, and more concise chunk or even splitting a larger video into smaller, separate ones should help students process the content successfully.

[74] Nilson, *Teaching at its Best,* 6.

[75] Ibid., 257.

[76] Ibid., 142.

Formative Assessment Type	Assessment Details
Performance Assessment	Students will be required to pick one song out of five or six assigned for the week to record and turn in to be graded. This is in the spirit of Action Learning which "addresses musical concepts… as *holistic cognitive actions* – as **musicianship skills –** not as abstract labels or definitions."[77] In performing, students will pull together, in each module, everything they have learned in that module and in previous weeks.
Worksheet Assessment	Students will fill out worksheets that cover each module's content to assess their understanding of that's module's content.

Summative Assessment Type	Assessment Type
Performance Assessment	Students will upload a final recorded performance of their given piece(s) at the end of that module's timeframe to assess mastery of that module's content.
Quiz Assessment	Students will take a summative quiz at the end of each module to assess mastery of that module's content.

[77] Regelski, *General Music in Grades 4-8,* 25.

Appendix G: Evaluation and Syllabus Chart

Teacher: Jonathan Holowaty	Piano Basics 1: An Online Curriculum	
Learning Outcomes	**Formative Assessment Plan**	**Rationale for Formative Assessment Type**
1. Recall finger numbers to play music.	After watching the instructional video, on an online worksheet students will identify the correct number that corresponds to the correct finger either by matching or filling in the blank.	Before students can apply their knowledge of finger numbers to playing music, it is best to assess whether they comprehend the concept of finger numbers by showing they can identify which number corresponds to which finger. "Fink posits that all six categories [of learning] are essential to create a genuinely significant learning experience." "*Foundational knowledge,*" or the ability of students to be able to "recall and demonstrate understanding… of information" is one of these essential categories of learning.[78] This is not the only assessment for this outcome, but it is an important one to include.
2. Recognize notes in C Position in the Treble and Bass clefs.	After watching the instructional video, students will take an online fill-in-the-blank quiz to assess how well they know the notes in C Position on the Treble and Bass clefs.	Fill-in-the-blank assessments are "well suited to the foreign languages, since they require precise representations of words."[79] While reading a foreign language does not have a 1-to-1 correlation with reading music, the similarities between recognizing words and recognizing which note is which

[78] Nilson, *Teaching at its Best,* 20.

[79] Ibid., 291.

		letter is close enough that this kind of quiz is a good fit for assessing students' understanding of reading notes in sheet music. As with the previous outcome, this is not the only assessment for this outcome, but it is an important one to include.
3. Demonstrate the purpose of basic rests and time signatures in sheet music.	After watching the instructional video, students will do a worksheet where they will assign the correct rest with the correct amount of beats to a number of incomplete measures of music. This will require an understanding both of rests and of the time signatures ¾ and 4/4.	This kind of multiple-choice assessment, done in this way, has the advantage of assessing "higher-order thinking" through an "*interpretive exercise.*" Students are required to not only have knowledge of rests and time signatures but assesses their comprehension, application, analysis and synthesis of the content.[80] Again, this is not the only assessment for this outcome, but it is an important one to include.
4. Apply dynamics to piano playing.	After watching the instructional video, students will record and post performances of a single song of their choosing from the list of songs offered in the lesson. These songs will include varied dynamics.	This kind of assessment emphasizes "holistic learning." Students learn dynamics not as "*atomistic* bits… of information" but rather in a "holistic musical context."[81] This is one assessment in a mix of a few different ones for this outcome.
5. Compose an original composition.	Students will evaluate and comment on each other's compositions via a discussion group or comment section online, pointing out points of musical interest in the compositions using terms explained in	It is important to challenge and assess piano playing at the highest cognitive level possible. This assessment reflects the "highest level of evaluation."[82] Students are required to creatively take what they have

[80] Nilson, *Teaching at its Best*, 294.

[81] Regelski, *General Music in Grades 4-8*, 18.

[82] Nilson, *Teaching at its Best,* 21.

	previous weeks (such as “crescendo” or “diminuendo” that give the song suspense, for example). They will also point out areas of weakness (wrong application of rests/notes, for example) in two fellow student’s compositions.	learned and “become the teacher,” assessing each other’s work.

Evaluation and Reflection

Issue/Strategy	**Rationale for Changing**
In the original lesson plans for the second outcome, the student is required to learn too many notes. Demanding that they demonstrate a competent understanding of the letter notes in general in the Treble and Bass clefs is simply too much for a span of only a couple modules. Students will instead only learn the notes in C Position (i.e., the C-D-E-F-G at and below Middle C).	Regelski states that there is a "need for each "stage" of a *progressive sequence* of learning to be "'mastered'… before proceeding to the next step."[83] Lowering the number of notes a student is required to learn lowers the cognitive load on them so they can master the notes they are given more easily. Since one lesson builds on another, this is very important.
Both melody and harmony being taught in the same lesson, with the student being required to apply both concepts, is too much content for one module. Harmony will be taught in one module and melody in the next. The two lessons for outcome four ("Apply dynamics…") will be condensed into one module to accommodate this.	Regelski states that there is a "need for each "stage" of a *progressive sequence* of learning to be "'mastered'… before proceeding to the next step."[84] Melody and harmony deserve their own distinct lessons before they are brought together due to their difficulty. Since one lesson builds on another, this is very important.
With the dynamics outcome lessons combined into one module, the graphic for module 9 (*Forte, Piano, and Everything in Between*) should be changed to include crescendo and	To make more room for teaching melody and harmony, the two lessons on dynamics have been condensed into one module. The graphic for that module, therefore, needs to be changed to include crescendo and diminuendo. Including all of these dynamic expressions on one graphic is doable and also very important for learning. "The brain processes visual information up to 60,000 times faster… than it decodes text."[85]

[83] Regelski, *General Music in Grades 4-8,* 63.

[84] Ibid., 63.

diminuendo which were originally taught in module 10 (*Crescendo and Diminuendo*).	
There needs to be more specificity in the requirement of students to accurately perform and record their songs for assessment. Complete perfection in performance is not a requirement of this course, only reasonably accurate understanding and application of the content. Therefore, more specifically, students will be required to perform their pieces with the allowance of two or three mistakes in their performance that relate to the content for that module.	In considering the outcomes, curriculum developers must "move backward through [a] course and devise assignments and tests that ask students to perform [the] mediating and foundational outcomes."[86] The outcomes of this course do not require that students perform their songs with complete and utter accuracy. Therefore, the assessment should reflect the correct outcome - namely, that a student should be able to perform their song in such a way that they demonstrate a reasonable understanding of the content for the given lesson and previous lessons up to that module.
In the original syllabus, students are not given enough opportunity to get feedback and improve on the given song for each module. The recorded song assignments will be pushed out a week to give students two weeks of practice instead of one for each piece. They will turn in an initial version of their song for teacher and student feedback before the final version. This will give the teacher the opportunity to	In the first draft of this course, students were given only one week to master a song. However, beginner students typically do not play their piano pieces with complete understanding of the music after one week even when they are trying their best. As Nilson says, "practice doesn't make perfect if, as is typical, you start out doing something imperfectly and never get feedback on how to do it better… To improve student achievement, we need feedback from students to assess their progress and suggest how we might enhance their learning."[87] To remedy this, students must be given the opportunity to receive feedback on how they are progressing through a given song and given more time to perfect their songs.

[85] Nilson, *Teaching at its Best*, 257.

[86] Ibid., 31.

[87] Ibid., 271.

address any gaps in students' understanding of the sheet music.	

Appendix H: Sample Assessments

Sample Summative Assessment

Fill in the blank

1. The note that generally counts for 1 beat is the _____ note.
2. The note that generally counts for 2 beats is the _____ note.
3. The note that generally counts for 4 beats is the _____ note.
4. Notes higher than middle C and played with the right hand are in the _____ clef.
5. Notes lower than middle C and played with the left hand are in the _____ clef.
6. Place these dynamics in the correct order from softest to loudest: p, pp, ff, mp, mf, f
   a. _____
   b. _____
   c. _____
   d. _____
   e. _____
   f. _____

True/False

7. The thumb in the right hand is called the "1" finger while the thumb in the left hand is called the "10" finger. **False**
8. The top number of a time signature signifies how many beats are in each measure. **True**
9. The bottom number of a time signature signifies which note counts for 4 beats. **False**
10. The harmony could be considered the "main tune" of the song. **False**
11. To play a passage of music diminuendo, the performer must gradually get louder and louder. **False**
12. The middle finger in each hand is referred to as the "3" finger. **True**

13. In C Position, the "2" finger in each hand plays the same letter note. **False**

14. Just as there are notes worth 1, 2, and 4 beats, there are also rests worth 1, 2, and 4 beats. **True**

15. If the note between a group of two black keys is a "D" note, then the note between *every* group of two black keys on the piano is a "D" note. **True**

16. The piano alphabet goes up to the letter "H" and then starts over again. **False**

17. To go progressively higher in sound on the piano, keys should be played from right to left. **False**

Multiple Choice

18. The small sections in music separated by bars, each containing the same amount of beats are called:
    a. Phrases
    b. **Measures**
    c. Boxes
    d. Parts

19. The rest that counts for 1 beat of silence is the:
    a. Whole Rest
    b. Half Rest
    c. **Quarter Rest**
    d. Pint Rest

20. The rest that counts for 2 beats of silence is the:
    a. Whole Rest
    b. **Half Rest**
    c. Quarter Rest
    d. Pint Rest

21. A time signature that is ¾ would have:
    a. **3 beats per measure**
    b. 4 beats per measure
    c. .75 beats per measure
    d. 7 beats per measure

22. The letter note to the right of a group of three black keys is:
    a. A
    b. **B**
    c. C
    d. D

e. E
f. F
g. G

23. The letter note to the left of a group of three black keys is:
a. A
b. B
c. C
d. D
e. E
f. **F**
g. G

24. A “cresc.” marking indicates that a performer should play a passage:
a. Gradually faster
b. Gradually slower
c. **Gradually louder**
d. Gradually quieter

25. A “dim.” marking indicates that a performer should play a passage:
a. Gradually faster
b. Gradually slower
c. Gradually louder
d. **Gradually quieter**

Sample Formative Assessment

Multiple Choice

1. Which example illustrates dynamics in order from softer to louder?
e. pp, ff, mf
f. **mp, mf, f**
g. mf, f, pp
h. mp, p, f

2.Which example illustrates dynamics in order from louder to softer?
i. pp, p
j. mf, f
k. **mp, p**
l. mp, mf

3.The dynamic marking of “piano” indicates that a section of music should be played:
m. Strongly

n. Detached
o. Smoothly
p. **Softly**

4.The dynamic marking of "forte" indicates that a section of music should be played:
q. Diligently
r. **Loudly**
s. Detached
t. Smoothly

5.A "crescendo" or "cresc." marking means a passage of music should:
u. **Gradually get louder**
v. Gradually get softer
w. Gradually get faster
x. Gradually get slower

6.A "diminuendo" or "dim." marking means a passage of music should:
y. Gradually get louder
z. **Gradually get softer**
aa. Gradually get faster
bb. Gradually get slower

Multiple True/False

7. Which sound event(s) best illustrates a crescendo?
cc. **A marching band coming towards you**
dd. A plane flying away from you
ee. A train leaving the station you are at
ff. **Marathon runners running towards you**

Short Answer

8.Which dynamic marking in sheet music indicates you should play a passage not just soft, but very softly? **pp**
9.Which dynamic marking in sheet music indicates you should play a passage not just loud, but very loudly? **ff**
10.Which dynamic marking in sheet music indicates you should gradually get louder? **Crescendo** or **cresc**.

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