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CAMILLA DOS SANTOS SILVA

PROCESSOS DE AUTORREGULAÇÃO DA APRENDIZAGEM NA PRÁTICA E NA
PERFORMANCE DE MÚSICOS AVANÇADOS

*SELF-REGULATED LEARNING PROCESSES IN THE PRACTICE AND
PERFORMANCE OF ADVANCED MUSICIANS*

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PERFORMANCE OF ADVANCED MUSICIANS*

Tese apresentada ao Instituto de Artes da Universidade Estadual de Campinas como parte dos requisitos exigidos para a obtenção do título de Doutora em Música, na área de concentração “Música: Teoria, Criação e Prática.”

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A todas nós que insistimos na ciência
a todas nós que resistimos na arte
e às pessoas que perdemos durante a pandemia de COVID-19

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RESUMO

Esta tese de doutorado foi elaborada de acordo com o formato *alternativo* ao tradicional, em conformidade com a instrução normativa CCPG nº 002/2021 da Pró-reitoria de Pós-graduação da UNICAMP, com autorização da Coordenadoria de Pós-graduação do Instituto de Artes da UNICAMP. Dessa forma, a seção de Resultados desta tese é formada pela versão submetida dos quatro artigos elaborados durante o doutorado. O Objetivo desta tese foi investigar os processos metacognitivos que músicos avançados empregam em sua prática instrumental diária, durante a preparação para uma performance musical. Estes processos foram discutidos à luz da Teoria Social Cognitiva, no construto da Autorregulação da Aprendizagem. Autorregulação refere-se aos "pensamentos, sentimentos e ações autogerados que são planejados e ciclicamente adaptados para a realização de metas pessoais" (Zimmerman, 2000, p. 14, tradução nossa). A hipótese central desta tese é a de que os músicos avançados adotam comportamentos autorregulatórios em sua prática diária mesmo sem dispor de informações teóricas sobre o construto. Essa hipótese parte da análise dos resultados obtidos até então pela literatura e, após identificar lacunas como a necessidade de se investigar estes resultados com amostras de contextos culturais lusófonos, os processos de autorregulação foram investigados em estudantes avançados e músicos profissionais por meio de quatro estudos. O primeiro estudo é uma revisão sistemática da literatura em prática musical e autorregulação da aprendizagem de músicos avançados. O segundo estudo tem desenho observacional e investigou os hábitos de prática musical de graduandos em música, com dados coletados por meio de grupo focal. O terceiro estudo investigou as mudanças nos processos autorregulatórios durante a participação em um desafio de música online. O quarto estudo, descritivo-correlacional, explorou os processos autorregulatórios de músicos avançados brasileiros e portugueses, replicando o questionário elaborado por Araújo (2016), e testando a robustez da escala em investigar a autorregulação na amostra. Os resultados sugerem que nossa hipótese pode ser parcialmente confirmada pois, apesar de a população estudada empregar ações direcionadas ao cumprimento de seus objetivos de prática musical e performance, há divergência entre as concepções de estratégias de aprendizagem e a consciência da necessidade de monitoramento e adaptação dessas estratégias.

Palavras-chave: prática musical; autorregulação da aprendizagem; performance musical; metacognição; músicos avançados.

ABSTRACT

This thesis aimed to investigate the metacognitive processes that advanced musicians employ in their daily instrumental practice while preparing for musical performance. These processes were discussed in light of the Social Cognitive Theory within the construct of Self-Regulated Learning. Self-regulation refers to "self-generated thoughts, feelings, and actions that are planned and cyclically adapted to attaining personal goals" (Zimmerman, 2000, p. 14). The central hypothesis of this thesis is that advanced musicians adopt self-regulatory behaviors in their daily practice even without having theoretical information about the construct. This hypothesis relies on the analysis of results obtained so far from the literature. After identifying gaps, such as the need to investigate these results with samples from Lusophone cultural contexts, four studies investigated self-regulation processes in advanced students and professional musicians. The first study is a systematic review of the literature on musical practice and self-regulation of advanced musicians. The second study has an observational design and investigated the musical practice habits of music undergraduates, with data collected through a focus group. The third study investigated changes in self-regulatory processes during participation in an online music challenge. The fourth descriptive-correlational study explored the self-regulatory processes of advanced Brazilian and Portuguese musicians, replicating the questionnaire developed by Araújo (2016) and testing the scale's robustness in investigating self-regulation in the sample. The results suggest that our hypothesis can be partially confirmed because, although the studied population employs actions to achieve their musical practice and performance objectives, there is a divergence between the conceptions of learning strategies and the awareness of the need to monitor and adapt them.

Keywords: music practice; self-regulated learning; music performance; metacognition; advanced musicians.

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1. INTRODUÇÃO

Embora o tempo dedicado à prática diária seja um elemento importante no contexto musical, pesquisas na área sugerem que somente a quantidade de horas dedicadas ao estudo do instrumento musical não garante que a prática seja eficiente (Bonneville-Roussy; Bouffard, 2015; Ericsson; Krampe; Tesch-Römer, 1993; Williamon; Valentine, 2000). Os outros fatores que poderiam contribuir para uma prática que resulte no sucesso da *performance* musical foram investigados pelas pesquisas crescentes sobre prática musical (How; Tan; Miksza, 2022). Uma recente revisão sistemática analisou a literatura da área de 1928 a 2020 e descobriu que esse campo de pesquisa foi influenciado por métodos usados na Psicologia e que os tópicos mais comuns e os artigos mais citados estavam relacionados a construções psicológicas, como prática deliberada, motivação e autorregulação (How; Tan; Miksza, 2022), que será o construto investigado nesta pesquisa.

A autorregulação pode ser definida como os “pensamentos, sentimentos e ações autogerados que são planejados e ciclicamente adaptados para a realização de metas pessoais” (Zimmerman, 2000, p. 14, tradução nossa). Logo, é um conjunto de processos que podem ser modelados e internalizados durante todo o processo de aprendizagem, e não uma característica fixa e pessoal (Zimmerman, 1998). O construto foi investigado a partir de várias perspectivas teóricas, incluindo abordagens fenomenológicas, sociocognitivas, volitivas, vygotskianas e construtivistas (Zimmerman; Schunk, 1989).

De acordo com a abordagem sociocognitiva, a autorregulação abrange três subprocessos interdependentes, quais sejam, a auto-observação, o autojulgamento e a autorreação, por sua vez influenciados por fatores ambientais (Bandura, 1986; Schunk, 1989). Essa perspectiva sustenta a ideia de que o monitoramento do próprio comportamento fornece dados valiosos que podem informar futuras escolhas de estratégias para realizar tarefas de aprendizagem e obter resultados satisfatórios (Schunk, 1989).

Desde a criação da designação Autorregulação da Aprendizagem (*Self-regulated learning*) em 1986, em uma conferência da Associação Americana de Pesquisa Educacional (*American Educational Research Association – AERA*), diferentes modelos de autorregulação foram propostos (Zimmerman, 1990). A abordagem sociocognitiva difere das teorias comportamentais não cognitivas por considerar a agência humana como uma influência no funcionamento do indivíduo (Bandura, 1991). À luz dessa abordagem, os modelos de autorregulação foram revisados por Puustinen e Pulkkinen (2001) e atualizados por Panadero (2017). Os modelos revisados incluíram, além do primeiro modelo proposto por Zimmerman (1989), modelos subsequentes desenvolvidos por Pintrich (2004), Boekaerts e Cascallar

(2006), Efklides (2011), Winne (2011) e o modelo de Aprendizagem Regulada Socialmente Compartilhada de Hadwin, Järvelä e Miller (2011). Embora não tenha sido mencionado nas revisões, o modelo de Weinstein (Weinstein, 1994; Weinstein; Husman; Dierking, 2000) encaixa-se nos critérios de inclusão de Panadero (2017). Sua abordagem às estratégias de aprendizagem autorregulada é amplamente usada na literatura sobre autorregulação, bem como seu instrumento de avaliação de estratégias de aprendizagem, o *Learning and Study Strategies Inventory* (LASSI) (McCombs, 2017; Weinstein; Schulte; Palmer, 1987).

O modelo cíclico de Zimmerman foi adaptado em 2002 ao aprendizado e à *performance* musical por McPherson e Zimmerman (2011) e amplamente explorado por pesquisadores de educação musical e *performance*. Inicialmente, foi apresentado como um modelo triádico que englobava influências pessoais, comportamentais e ambientais (Zimmerman, 1989); posteriormente, como um modelo multinível, no qual a aprendizagem transforma-se da observação para a autorregulação (Zimmerman, 2013); e, finalmente, como um modelo cíclico, que organiza os processos de autorregulação da aprendizagem temporalmente em três fases: Antecipação (antes da tarefa), *Performance/Controle Volitivo* (durante a tarefa/prática) e Autorreflexão (após a tarefa ou *performance*) (Zimmerman, 1998, 2000, 2013; Zimmerman; Campillo, 2003), descritas a seguir:

Fase de Antecipação

Antes de iniciar a prática musical, os indivíduos devem analisar as características da tarefa e usar essas informações para estabelecer metas e planejar as estratégias que serão empregadas. A definição e a organização hierárquica das metas ajudam a regular o progresso, pois as metas próximas cumpridas sustentam a avaliação e a adaptação das metas mais distantes (Zimmerman, 2000). O planejamento refere-se à seleção, à avaliação e à adaptação das estratégias de aprendizagem que são aplicadas na execução de uma tarefa (Weinstein; Husman; Dierking, 2000).

Esses processos são apoiados pelas crenças sobre a capacidade de realizar uma atividade e regular o próprio comportamento para gerenciar a motivação durante uma trajetória de aprendizagem (Zimmerman, 2000).

No aprendizado e na *performance* musical, as metas devem ser definidas considerando eventos futuros – a exemplo de recitais e exames – e a prática diária, a fim de selecionar objetivos de natureza técnica e interpretativa a serem alcançados em cada sessão de prática. Estratégias específicas são elaboradas para cada tarefa, atingindo as metas de prática diária e, em seguida, construindo a experiência e as crenças necessárias para atingir as metas futuras de *performance*.

Performance/Controle volitivo

Nessa fase, os indivíduos aplicam as estratégias selecionadas durante a fase de Antecipação, apoiadas pelos subprocessos de Autocontrole e Auto-observação.

O subprocesso de autocontrole engloba a manutenção do foco (adaptação do comportamento e do ambiente para otimizar a concentração), imagens mentais (visualização de resultados positivos), autoinstrução (verbalizações durante a prática) e estratégias de aprendizagem.

As estratégias de aprendizagem são definidas como “ações tomadas pelo aluno para concluir uma tarefa ou obter informações” (Dembo; Seli, p. 280, tradução nossa). Dentro do contexto da autorregulação, essas ações requerem agência, propósito e auto-observação (Zimmerman; Martinez-Pons, 1986). Os alunos devem usar as informações de influências pessoais, comportamentais e ambientais para selecionar estratégias, considerando que nenhuma estratégia funciona da mesma forma para todas as pessoas, nem em todas as situações (Nielsen, 2001, 2015; Zimmerman, 2000). As estratégias são selecionadas e aplicadas não apenas para realizar uma tarefa específica (repertório ou questões técnicas), mas também para apoiar a estruturação do ambiente, o gerenciamento do tempo e a busca de ajuda por meio de recursos externos (McPherson; Zimmerman, 2011a; Zimmerman; Risemberg, 1997).

A auto-observação é a ação de monitorar o próprio comportamento, as condições em que ocorre a aprendizagem e os resultados do desempenho (Zimmerman, 2000). Manter registros das metas, das estratégias empregadas, dos sentimentos e dos resultados gera informações que podem ajudar a monitorar a trajetória de aprendizagem e a regular a motivação e as emoções associadas à realização da tarefa. Essas informações podem ser registradas em diários de prática ou em gravações de vídeo e áudio.

Autorreflexão

Após a conclusão de uma tarefa, os indivíduos avaliam seus resultados. Juntamente com as informações obtidas durante a fase de *performance*/controle volitivo, os resultados são avaliados a partir de diferentes critérios, como domínio (metas autoestabelecidas alcançadas hierarquicamente), desempenho anterior/autocritérios (comparações dos resultados atuais com os anteriores), critérios normativos (comparação dos resultados pessoais com os de terceiros), critérios colaborativos (avaliação a partir do papel de cada indivíduo em um ambiente social ou em uma equipe) (Zimmerman, 2000, 2002). A avaliação dos resultados usando critérios de domínio criará um senso de progresso, mesmo que os resultados estejam abaixo do esperado. Com as informações registradas durante a fase de desempenho, os alunos podem avaliar como gerenciaram seu comportamento durante a tarefa e qual o efeito das estratégias planejadas e das metas definidas durante a fase de Antecipação. A atribuição causal ajuda a sustentar as crenças de eficácia porque oferece uma oportunidade de mudar estratégias e ações na próxima trajetória de aprendizagem. A atribuição de resultados negativos a características pessoais, como talento ou habilidade, pode levar a evitar a tarefa no futuro (Zimmerman, 1998, 2000).

Durante essa fase, os alunos têm autorreações que podem ser de autossatisfação ou insatisfação, a depender do resultado. Esses sentimentos podem fazer com que os alunos busquem novas oportunidades de aprendizado/desempenho ou evitem futuros ciclos de aprendizado, pois as pessoas tendem a buscar ações que acarretem emoções positivas (Bandura, 1991; Zimmerman, 1998, 2000).

Os processos dessa fase promovem a reflexão sobre o que deve ser mudado para obter melhores resultados na próxima sessão de prática. As inferências adaptativas serão as conclusões proativas sobre quais estratégias precisam ser adaptadas e quais metas devem ser modificadas (McPherson; Zimmerman, 2011a; Zimmerman, 2000), ao passo que as inferências defensivas, após um resultado negativo, protegem o aluno de insatisfação futura, mas também diminuem a oportunidade de adaptação (Zimmerman, 1998).

Em suma, a influência que as autorreações e os autojulgamentos exercem sobre o próximo ciclo de aprendizagem é um aspecto que caracteriza o modelo como cíclico. O modelo também é recíproco entre as fases, pois cada processo é uma decisão que afeta as ações subsequentes. Por exemplo, uma estratégia conscientemente planejada durante a fase de *Antecipação* e empregada e monitorada durante a fase de *Performance/Controle Volitivo* refletirá sobre as atribuições causais durante a última fase, proporcionando uma oportunidade de adaptar a escolha da estratégia (Zimmerman, 2000, 2013; Zimmerman; Schunk, 1989).

Outra abordagem da autorregulação é a visão dos processos de acordo com as seis dimensões psicológicas da aprendizagem (Zimmerman; Risemberg, 1997; McPherson; Zimmerman, 2011; Miksza, 2012). Nesse modelo, existem seis perguntas que apresentam as dimensões, que, por sua vez, abrigam os processos autorregulatórios relacionados a elas. A pergunta “Por quê?” nos direciona à dimensão Motivo, que abriga processos como motivação (decisão sobre praticar e quando praticar), estabelecimento de objetivos e planejamento das estratégias. Ao estabelecer as metas e planejar a prática, surge a questão “Como?”, que diz respeito à dimensão Método. Essa dimensão engloba os comportamentos de emprego, avaliação e adaptação das estratégias de aprendizagem, considerando que elas, dentro do contexto da autorregulação, envolvem agência humana, propósito e auto-observação (Zimmerman; Martinez-Pons, 1986). A terceira pergunta, “Quando?”, envolve os processos da dimensão Tempo. O correto gerenciamento do tempo disponível requer o equilíbrio entre a quantidade de tempo de prática e a distribuição adequada desse tempo para cada atividade relacionada. A dimensão Comportamento relaciona-se com a questão “O quê?” e engloba os processos metacognitivos da aprendizagem, como o autorregistro, o automonitoramento e a manutenção do foco. A pergunta “Onde?” refere-se ao local de realização da prática e acompanha a dimensão Ambiente Físico. O ambiente onde ocorre a aprendizagem influencia a prática. Logo, estratégias podem ser empregadas para estruturar esse ambiente com o necessário para a prática musical ideal. A última dimensão, Fatores Sociais, contém os

processos que respondem à pergunta “Com quem?”. Os indivíduos recorrem a fatores externos, como a ajuda de colegas, professores, familiares e também materiais como vídeos, métodos de técnica, gravações. Essa dimensão é mais frequentemente ativada no início da trajetória de aprendizagem. Assim, esses comportamentos podem oferecer o suporte necessário para que o indivíduo internalize os processos autorregulatórios e passe a utilizar mais os processos metacognitivos (e internos) (Araújo, 2016).

Desde a adaptação do modelo cíclico de Zimmerman e da abordagem multidimensional por McPherson e Zimmerman em 2002 (McPherson; Zimmerman, 2002, 2011), a literatura da área reuniu evidências sobre os comportamentos característicos da autorregulação da aprendizagem em diversos contextos de aprendizagem e *performance* musical (How; Tan; Miksza, 2022). Além dos estudos sobre como os processos autorregulatórios são adquiridos por músicos iniciantes, pesquisas envolvendo músicos avançados revelaram como também se beneficiam do conhecimento e da reflexão sobre sua prática musical diária.

No entanto, algumas lacunas nos levaram a avançar na investigação do tema, a saber: como acontece o emprego da teoria na prática e na *performance* dos músicos avançados; como se identificam as estratégias usadas por músicos avançados e de que modo elas são relatadas; e como o construto pode ser investigado sob diferentes abordagens metodológicas. A partir dessas lacunas, desenvolvemos os quatro artigos desta tese.

Convém salientar que, anteriormente, a literatura definia músicos avançados como aqueles que acumulavam, pelo menos, dez anos de experiência com seu instrumento principal (Ericsson *et al.*, 1993). Entretanto, à medida que a produção científica em prática musical alcançou contextos e ambientes musicais diversos, músicos matriculados em instituições de ensino superior, como universidades ou conservatórios, que estão em preparação para tornarem-se músicos profissionais ou já estão atuando profissionalmente, também foram designados como músicos avançados (Araújo, 2016; Papageorgi *et al.*, 2010), ou seja, a população estudada nesta tese.

Músicos avançados apresentam habilidades de prática deliberada, são capazes de manter o foco durante o estudo de instrumento e receberam instrução sobre como abordar sua prática com base nos aspectos técnicos, teóricos e interpretativos da música (Miksza, 2015; Williamon *et al.*, 2002). Existem outras denominações para a mesma população, como músicos de elite (De Bruin, 2019; Kegelaers; Oudejans, 2020; Mornell *et al.*, 2020), músicos *experts* (De Bruin, 2017; Fasano *et al.*, 2020), graduandos em música (Clark; Williamon, 2011; McPherson *et al.*, 2019; Zhukov, 2012), músicos profissionais (Dos Santos; Gerling, 2011; Pike, 2017) e músicos universitários (Boucher *et al.*, 2020, 2021; Kim, 2010).

Na busca por conhecer como acontece a formação dessa população e o que torna um estudante um músico profissional, investigamos os comportamentos adotados por esses

indivíduos durante a prática musical, que direcionam os esforços para o alcance de resultados de *performance*.

2. OBJETIVOS

Objetivo geral:

Esta tese teve como objetivo geral identificar e caracterizar os processos autorregulatórios empregados por músicos avançados em sua prática e *performance* em distintos contextos, a partir de dois eixos teóricos dentro do construto da autorregulação da aprendizagem à luz da teoria social cognitiva: o modelo cíclico de Zimmerman (Zimmerman, 2000; Zimmerman; Campillo, 2003) e o modelo das seis dimensões psicológicas da aprendizagem (McPherson; Zimmerman, 2011; Zimmerman; Risemberg, 1997).

Objetivos específicos:

- a) compreender as implicações do emprego da teoria da autorregulação no contexto da prática e da *performance* dos músicos avançados;
- b) identificar as estratégias de prática musical relatadas por músicos avançados e a relação dessas estratégias com os processos autorregulatórios;
- c) investigar as possibilidades de abordagens quantitativas, qualitativas e autorreflexivas aos processos autorregulatórios dos músicos avançados.

A partir dos objetivos estabelecidos, elaboramos a hipótese central desta tese: os músicos avançados adotam comportamentos autorregulatórios em sua prática diária, mesmo aqueles que não possuem conhecimento teórico sobre o construto da Autorregulação da Aprendizagem. O estudo relatado no Artigo 1 auxiliou a formular a hipótese, ao reunir e revisar sistematicamente resultados de 48 pesquisas que exploraram processos autorregulatórios em músicos avançados. Com esse estudo, pudemos conhecer a trajetória da produção acadêmica no tema e identificar tendências e lacunas nas publicações.

No estudo 2, organizamos grupos focais com graduandos em Música e provocamos a reflexão sobre os processos envolvidos na prática musical. Com o auxílio de um instrumento quantitativo, a escala Atitudes e Sensações na Prática Musical (Araújo, 2016), discutimos quais estratégias os alunos empregam em sua prática e quais as suas concepções sobre cada dimensão psicológica da aprendizagem. Os resultados principais demonstram que os participantes adotam estratégias em sua prática, entretanto, geralmente não possuem o hábito de refletir sobre essas estratégias e de adaptá-las.

O estudo 3, que investigou a participação da autora em um desafio ambientado em mídias sociais (*#100daysofpractice*) explorou a autoetnografia analítica como ferramenta de coleta e análise de dados. Devido à natureza da autoetnografia, esse estudo foi realizado com amostra já informada sobre a teoria envolvida no construto da autorregulação. Apesar dessa limitação, o estudo contribuiu para responder à hipótese de pesquisa, tendo em vista

que pudemos analisar as mudanças nas estratégias empregadas pela participante durante o desafio. Os principais resultados realçam a interdependência entre as dimensões psicológicas da aprendizagem e o modo como as estratégias empregadas frequentemente afetam mais de uma dimensão.

O estudo 4 testou a hipótese com uma amostra ampla, por meio de uma pesquisa quantitativa que validou e aplicou o questionário Atitudes na Prática Musical (Araújo, 2016). O questionário investiga os comportamentos que músicos avançados brasileiros e portugueses declaram adotar durante sua prática musical. A partir dos dados coletados, calculamos se há diferenças nos níveis de autorregulação em relação a variáveis como gênero, nacionalidade, instrumento musical, idade, quantidade de prática, *expertise* e tempo de experiência profissional. Os principais resultados indicam que há diferenças nas pontuações de autorregulação na variável quantidade de prática. Assim, músicos que declararam estudar por mais horas atingiram pontuação mais alta. Nas variáveis *expertise* e idade, músicos mais experientes e mais velhos obtiveram pontuações mais altas nos fatores pessoais e mais baixas nos fatores externos, indicando, nesse caso, um maior emprego de estratégias metacognitivas e menor apoio em aspectos sociais da aprendizagem.

3. MÉTODOS

Esta pesquisa abrangeu 4 estudos com diferentes desenhos de pesquisa:

Artigo 1 - “*Self-Regulated Learning Processes of Advanced Musicians: a PRISMA Review*”. Revisão sistemática de literatura, seguindo os protocolos PRISMA-2020.

Artigo 2 - “A prática instrumental diária de graduandos em Música: estratégias de aprendizagem e autorregulação”. Estudo qualitativo com coleta de dados por meio de grupo focal.

Artigo 3 - “*#100daysofpractice: Selection and adaptation of self-regulated learning strategies in an online music performance challenge*”. Estudo de caso com abordagem autoetnográfica.

Artigo 4 - “*Attitudes in music practice: a survey exploring Self-Regulated Learning processes of advanced Brazilian and Portuguese musicians*”. Estudo quantitativo descritivo-correlacional.

Os materiais e métodos empregados encontram-se detalhados nos respectivos artigos, na seção Resultados desta Tese.

4. RESULTADOS

4.1. Artigo 1 - Self-Regulated Learning Processes of Advanced Musicians: A PRISMA Review

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Self-Regulated Learning Processes of Advanced Musicians: A PRISMA Review

Abstract: This systematic review aimed to provide a comprehensive and up-to-date understanding of the current state of empirical research in Self-Regulated Learning (SRL) and music, investigating learning strategies planned and employed by advanced musicians and the evidences of the benefits of SRL training for this population. Using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol, we initially identified 3323 records related to our search, spanning from 2001 to 2023. Inclusion criteria consisted of empirical, peer reviewed articles reporting studies with advanced musicians (undergraduate, graduate and professional levels), based in higher education institutions, approaching SRL from the Social-Cognitive Theory perspective, published in English, Spanish, Portuguese or French. Forty-eight articles met all the predefined inclusion criteria and were included in the review, divided into three types: interventions, descriptive-correlational, and case studies. The findings were discussed according to the phases of Zimmerman's model, emphasizing the processes of goal setting, selection and adaptation of learning strategies, help seeking, time management, and self-evaluation and adaptation. Our analysis identified trends in the behavior of advanced musicians, particularly regarding practice quantity and musical achievement. Suggestions for future research indicate the need to invest in the training of instrument teachers, so that they become acquainted with SRL learning strategies that can be passed on to future musicians.

Keywords: self-regulated learning; music performance; music practice; systematic review; social-cognitive theory.

While time spent practicing is considered an essential component of musical practice, existing research suggests that additional factors also contribute to the quality and effectiveness of practice sessions (Bonneville-Roussy & Bouffard, 2015; Ericsson et al., 1993; Williamon & Valentine, 2000). These factors have been investigated within the widening domain of music practice research (How et al., 2022). The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) (Page et al., 2021) review by How and colleagues

(2022) analyzed research on music practice from 1928 to 2020 and found that this field had been influenced by methods used in psychology, and that the most common topics and the most cited articles were related to psychological constructs such as deliberate practice, motivation, and self-regulation.

Self-regulation can be defined as the “self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals” (Zimmerman, 2000, p. 14). It is a set of processes that can be modeled and internalized throughout the learning process, rather than a single, innate trait (Zimmerman, 1998). Self-regulation has been investigated from various theoretical perspectives, including phenomenological, operant, , volitional, Vygotskian, constructivist, and social-cognitive approaches (Zimmerman & Schunk, 1989).

According to the Social-Cognitive Framework, Self-Regulated Learning (SRL) encompasses three interdependent subprocesses: self-observation, self-judgment, and self-reaction, which are all influenced by environmental factors (Bandura, 1986; Schunk, 1989). This perspective supports that monitoring one's own behavior provides valuable information that can inform future choices of strategies to accomplish learning tasks and achieve satisfying outcomes (Schunk, 1989).

Since the establishment of the designation Self-Regulated Learning in 1986 at a conference of the American Educational Research Association, different SRL models have been proposed (Zimmerman, 1990). The socio-cognitive approach to self-regulation differs from non-cognitive behavioral theories by considering human agency as an influence in the individual's functioning (Bandura, 1991). Considering this approach, SRL models were reviewed by Puustinen & Pulkkinen (2001) and updated by Panadero (2017) following specific inclusion criteria: (a) peer-reviewed (specifically in Journal Citation reports or Self-Regulation handbooks); (b) published in the English language; and (c) with a minimum of 500 references (if published before 2010) or 20 citations per year (if published after 2010) (Panadero, 2017). The models reviewed included, besides the first SRL model proposed by Zimmerman (1989), those subsequently developed by Pintrich (Pintrich, 2004), Boekaerts' Dual Processing Model (Boekaerts & Cascallar, 2006), Efklides (2011), Winne and Hadwin (Winne, 2011), and the Socially Shared Regulated Learning Model by Hadwin et al. (2011). Although not mentioned in the reviews, Weinstein's model (Weinstein, 1994; Weinstein et al., 2000) fits Panadero's (2017) inclusion criteria, and their approach to self-regulated learning strategies is widely used in self-regulation literature, in addition to their learning strategies assessment instrument (LASSI) (McCombs, 2017; Weinstein et al., 1987).

Zimmerman's cyclical model was adapted to music learning and performance by McPherson and Zimmerman (2002, 2011) and broadly explored by music education and performance researchers: initially, as a triadic model that encompassed personal, behavioral

and environmental influences (1989); later, as a multilevel model in which learning shifts from observation to self-regulation (Zimmerman, 2013); and, finally, as a cyclical model, which organizes SRL processes temporally in three phases: Forethought (before the task), Performance/Volitional Control (during the task/practice), and Self-Reflection (after the task or performance) (McPherson & Zimmerman, 2002; Zimmerman, 2013; Zimmerman & Campillo, 2003), as described below.

Forethought

Before accomplishing a task, learners must analyze the task features and use this information to *establish goals* and plan the strategies to be employed. In music learning and performance, the goals must be set with consideration to future events (recitals, exams) and daily practice, and by selecting technical and interpretative objectives to achieve at every practice session. Through *strategic planning*, specific strategies will be devised for each task, achieving daily practice goals, and then building the experience and necessary beliefs to accomplish future music performance goals (Zimmerman, 2002).

Performance/Volitional Control

In this phase, learning strategies selected during the forethought phase are employed, supported by self-control and self-observation subprocesses. Learning strategies, in this context, are defined as “actions taken by the learner to complete a task or obtain information” (Dembo & Seli, 2016, p. 280). In a SRL framework, these actions require agency, purpose, and self-observation (Zimmerman & Martinez-Pons, 1986). Learners must use the information from personal, behavioral, and environmental influences to select strategies, bearing in mind that no strategy works the same way for all people, nor in all situations (Nielsen, 2001, 2012, 2015; Zimmerman, 2000). Strategies are selected and applied not only to accomplish a specific task (repertoire or technical issues) but also to support environment structuring, time management, and help seeking (McPherson, 2022; McPherson & Zimmerman, 2002; Zimmerman & Risemberg, 1997). *Self-observation* is the action of monitoring elements of our behavior, the conditions in which our learning takes place, and the results we obtain from our performance (Zimmerman, 2000). Keeping record of the goals, strategies employed, feelings, and outcomes generates information that can help to monitor the learning trajectory and regulate the motivation and the emotions associated with task accomplishment.

Self-Reflection

After completing a task, learners evaluate their outcomes and experience self-reactions to the results. Considering the information self-recorded during the performance

phase, an evaluation can be made on how behavior was managed during the task and how well the strategies planned and goals set during the forethought phase worked. The processes in this phase invite one to reflect on what should be changed to obtain better results in the next practice session. The influence that self-reactions and self-judgments have on the next learning cycle characterizes the model as cyclical. The model is also reciprocal between phases, as each proactive process is a decision that influences subsequent actions. For example, a strategy consciously planned during the forethought phase, and employed and monitored during the performance phase, will be reflected in the causal attributions during the last phase, providing an opportunity to adapt the strategy choice (Zimmerman, 2000, 2013).

Since the adaptation of the model by McPherson and Zimmerman (2002, 2011), there has been a continuous growth in research into musical learning from the perspective of social cognitive theory, as observed by Varela et al. (2016), who conducted a systematic review of 25 publications on SRL up to 2011. No specific protocols were applied. According to the criteria established by the authors, articles that are non-empirical, not in English, unrelated to music learning or performance, unrelated to the article by McPherson and Zimmerman (2002), and articles with pre-service music teachers in the sample, were excluded. Each selected article was given a score within a categorization system devised by the authors, and from these scores means and correlations were calculated. Results showed that music instruction supported by SRL processes is more related to levels of self-regulated behavior than music instruction without the social cognitive theory background.

However, as pointed out by the authors, studies with different sample sizes were scored unweighted, and the relationships were calculated according to different numbers of resources: some questions were answered using all 25 studies, and others using only four studies. Another noteworthy limitation is that, despite being one of the exclusion criteria, not all the articles retrieved refer to SRL as a construct within social cognitive theory.

Purpose of this Study

This systematic review aimed to collect empirical information on published research about SRL processes and their impact on advanced musicians' practice and performance. Expert musicians were previously defined as those who have had at least ten years of experience with their primary instrument, according to the literature (Ericsson et al., 1993). However, as research in musical practice has increased, musicians enrolled in higher education institutions such as universities or professional conservatories, who are preparing to become professional musicians or are already working professionally, have been considered advanced musicians (Araújo, 2016; Papageorgi et al., 2010), a wider designation

adopted by this review. These musicians exhibit deliberate practice skills, an adequate cognitive development to maintain focus during practice, and sufficient knowledge to organize practice based on musical form and harmony (Miksza, 2015; Williamon et al., 2002). Other terms used to describe this category of musicians include *elite musicians* (De Bruin, 2019; Kegelaers & Oudejans, 2020; Mornell et al., 2020), *expert musicians* (De Bruin, 2017; Fasano et al., 2020), *undergraduate musicians* (Clark & Williamon, 2011; McPherson et al., 2019; Zhukov, 2012), *professional musicians* (Dos Santos & Gerling, 2011; Pike, 2017), and *college musicians* (Boucher et al., 2020, 2021; Kim, 2010).

The research questions that guided our search strategy were:

- 1) How do advanced musicians plan and employ learning strategies?
- 2) Is there evidence of the benefits of SRL training for advanced musicians?

Method

Information Retrieval

The PRISMA statement was established with the aim of improving the reporting procedures of systematic reviews and meta-analyses (Page et al., 2021). It was originally developed in 2009 and underwent an update in 2020, which was applied in this review. The statement includes a 27-item checklist, which offers a structured approach for the retrieval of essential information, and a flow diagram that provides guidance on the organization of search results. In this section, we will outline the key steps involved in the Search Strategy and Screening phases of a PRISMA-compliant review.

Inclusion Criteria

In this review, we modified Varela et al.'s (2016) inclusion criteria by expanding the selected languages (English, Spanish, Portuguese, and French), excluding results from grey literature, and considering only articles that address SRL in reference to Zimmerman's model (2000). The inclusion/exclusion criteria included the following categories: Study Type and Design, Population, Expertise Level, Language, Setting, and SRL approach (see table 1). Unlike the previous review, we decided to include studies with pre-service music teachers in the sample.

Category	Inclusion Criteria	Exclusion Criteria
Study type and design	Empirical – qualitative, quantitative, or mixed methodology Peer reviewed article	Not empirical Grey literature Duplicated in another database or source

		Review
Population	Advanced students and professional musicians (undergraduates, graduates, professional musicians)	Children, high school musicians
Language	English, Spanish, Portuguese, French	other
Date	All	
Setting	Higher education institutions	other
SRL approach	SRL from social cognitive theory	Related to practice or learning strategies but not SRL; Self-regulation construct from other psychology theories

Table 1: Inclusion Criteria.

Search Strategy

The search strategy was defined according to the research questions. By selecting the Outcome (self-regulation) and Population (advanced musicians) items from the PICOS system (Page et al., 2021), we elaborated the following search string: ("Self-regulation" OR "Self-regulatory" OR "Self-regulated" OR Metacognition OR Metacognitive OR "Social-cognitive") AND ("Expert musicians" OR "Elite musicians" OR "Professional musicians" OR "Undergraduate musicians" OR "Postgraduate musicians" OR "College musicians" OR "Advanced musicians"). After peer reviewing the search string and undertaking several pilot searches on Scopus, PsycInfo, JSTOR, Eric, Web of Science, EBSCO, Science Direct, Google Scholar, and SAGEPUB, we adapted it according to the supported Boolean operators in each source. All the information collected from these bases, the applied search strings, and the results obtained can be found in the Appendix (Table S1 of Supplemental Material).

On July 3, 2023, we conducted the initial search, generating a result of 3323 entries from databases (Scopus: 487; PsycInfo: 198; JSTOR: 147; Eric: 76), search platforms (Web of Science: 864; EBSCO: 287; Science Direct: 101), web search engine (Google Scholar: 839), and a specific website that contains a large number of music journals (SAGEPUB: 324)(Rethlefsen et al., 2021). All the references were imported to Mendeley Software. From the initial entries, 439 duplicate records and six retracted articles were removed.

The remaining 2878 records were analyzed by title and abstract, and we removed 664 items that were not related to music and 2055 not related to SRL. We analyzed the full 159 remaining articles and removed 111 matching the exclusion criteria. Finally, 48 studies were included and discussed in this systematic review. Figure 1 shows the search flow diagram (Page et al., 2021).

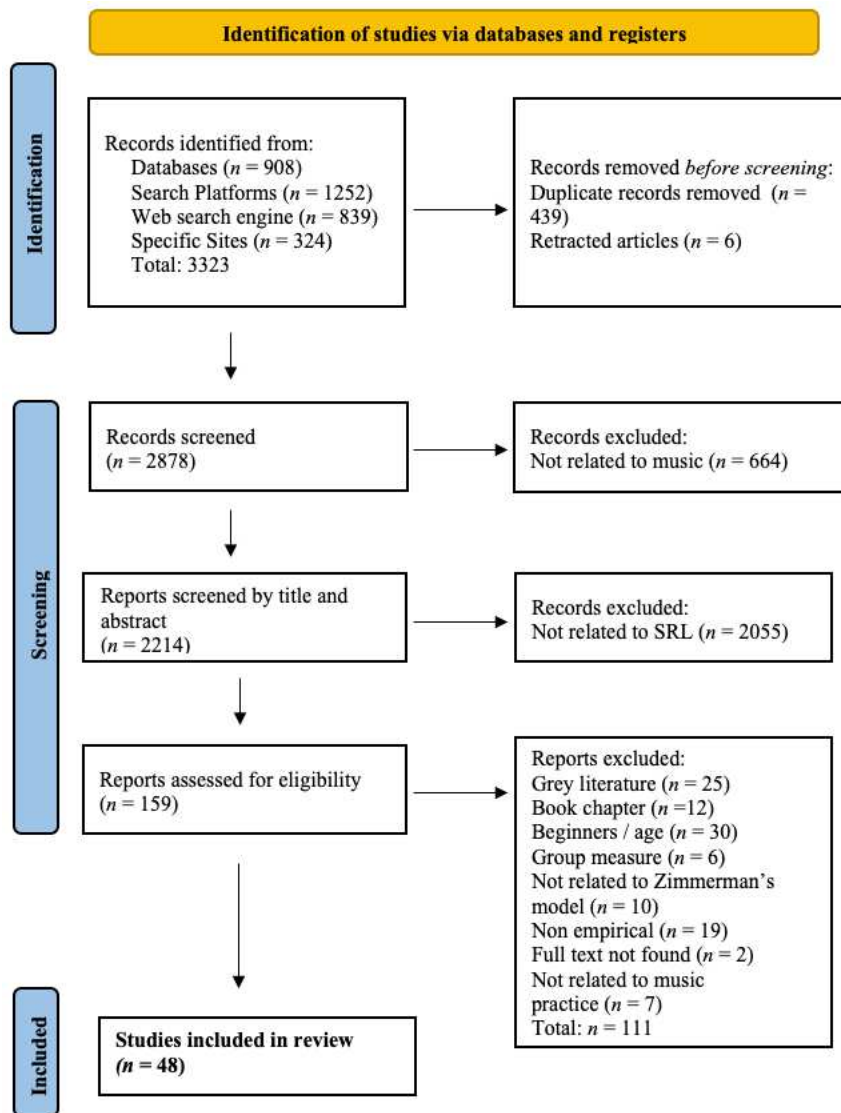


Figure 1. PRISMA Flow-diagram (Page et al., 2021).

Results

The 48 articles retrieved and selected were published between 2001 and 2023 (Table S2 - Supplemental Material). Most studies were implemented in the USA ($n = 9$), followed by Norway ($n = 6$) and Turkey ($n = 6$). Sample sizes ranged from one to 880 participants, with the majority of the studies involving less than 20 participants ($n = 26$). 41 studies investigated self-regulation in classically trained musicians, one focused on jazz musicians, and four included mixed backgrounds in the sample. Two did not present this information. Participants' ages ranged from 17 to 69 years. SRL processes were measured during music practice in 36 studies, and 12 addressed both performance and music practice.

The observational case studies ($n = 18$) analyzed the practice behaviors and strategies of advanced students and professional musicians from the USA ($n = 2$), Brazil ($n = 4$), Australia ($n = 3$), Norway ($n = 2$), China ($n = 1$), Finland ($n = 2$), Germany ($n = 1$), Spain ($n = 1$), the Netherlands ($n = 1$), and one study included pianists from Australia and/or the USA

($n = 1$). The samples ranged from two to 38 participants. 10 studies used practice or performance video recording as the primary form of data collection, either for behavior/performance evaluation or as supporting material for recall interviews. Eleven studies used interviews as one of the forms of data collection. Seven studies also used questionnaires, and two collected data through microanalysis protocols.

The intervention studies ($n = 13$) evaluated the effect of SRL strategies in music practice and/or performance. Those studies took place in the USA ($n = 5$), Canada ($n = 2$), Australia ($n = 1$), the Netherlands ($n = 1$), Norway ($n = 1$), Taiwan ($n = 1$), Turkey ($n = 1$), and the UK ($n = 1$). Sample Sizes ranged from one to 53 participants. The studies combined different data-collection instruments: questionnaires/scales ($n = 3$), video recording ($n = 5$), interviews ($n = 5$), practice diary ($n = 5$), audio recording ($n = 1$), microanalysis protocol ($n = 2$), and researcher monitoring logs ($n = 1$).

The quantitative descriptive-correlational studies ($n = 17$) applied surveys to measure SRL scores and learning strategies reported by the participants. The research occurred mostly in institutions in Turkey ($n = 5$), Norway ($n = 3$), and the UK ($n = 3$), USA ($n = 2$), Canada ($n = 1$), China ($n = 1$), Germany ($n = 1$), and Portugal ($n = 1$). Samples ranged from 33 to 880 participants and were from multiple countries. All 17 studies applied questionnaires with one or more SRL scales, and five of them also used scales not originally developed for music learning/performance. Figure 2 illustrates the number of published articles per year, as well as the distribution in relation to study design.

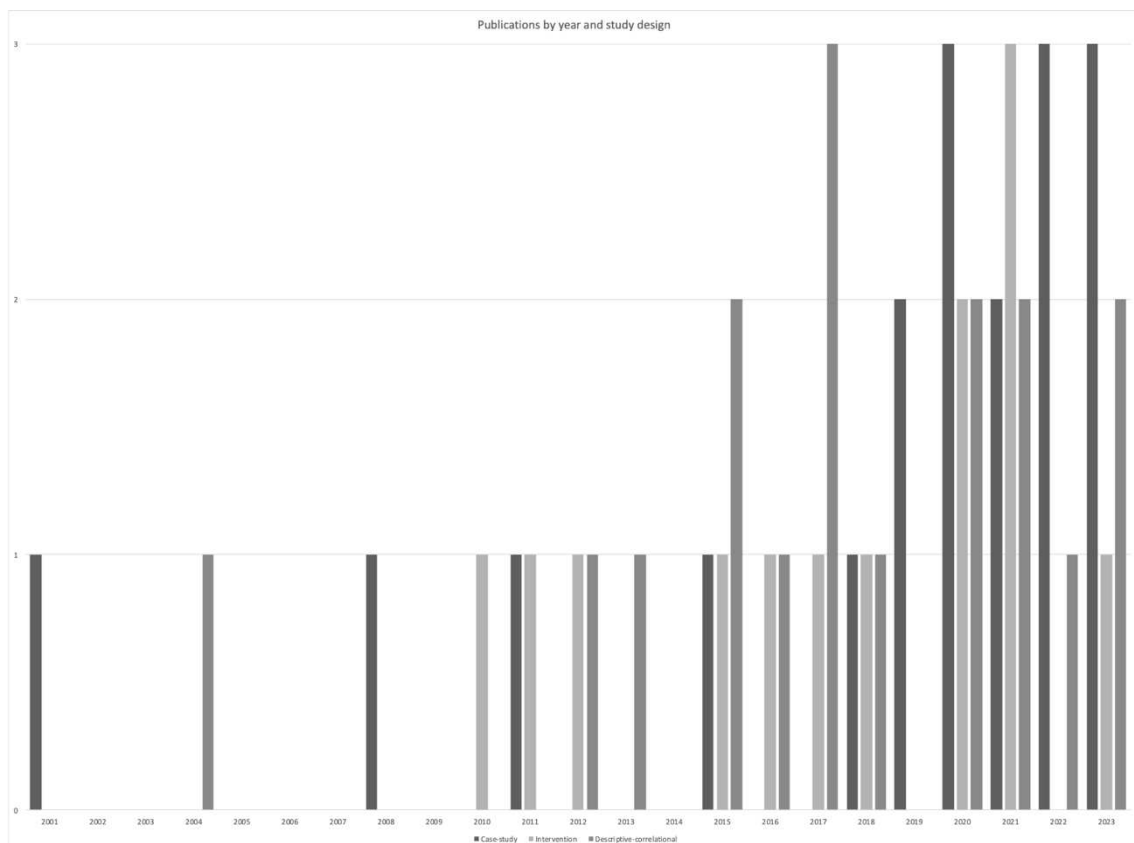


Figure 2. Number and design of articles by year

Discussion

In order to organize the data extracted and report the SRL processes and the strategies addressed in the articles, results of this review will be discussed according to the phases of Zimmerman's cyclical model (2000): Forethought, Performance, and Self-Reflection.

Forethought

We will focus on three processes associated with the forethought phase: goal-setting, goal evaluation and adaptation, and goal nature (technical versus interpretative).

Goal setting

Of the included case studies, Nielsen (2001), Dos Santos (2018), Suzuki and Mitchell (2022), Dos Santos Silva et al. (2023), and Kegelaers et al. (2022) reported goals self-set by the participants that influenced the subsequent stages of SRL. Nielsen (2001) observed that participants self-set specific goals and planned the strategies to be used in practice, using personal information to determine which levels of performance were possible to achieve. This strategic planning was also observed in the participant in López-Iñiguez and McPherson's study (2020), and statistically measured by the descriptive-correlational study conducted by Hatfield et al. (2017), in which the goal-setting scale positively and significantly correlated with self-efficacy, time management, self-evaluation, and coping.

However, the pretest in Hatfield's (2016) intervention revealed that "participants had little experience setting specific goals for their instrumental practice" (p.13), and in Pike's (2017) study, the participant set unrealistic long-term goals. McPherson et al. (2019), on the other hand, classified the goals set by the participants as "vague", a description that was also used by Mornell et al. (2020) and by Miksza and Brenner (2023) when referring to the identification of problems to be solved during a practice session. Both mentioned that their participants showed little awareness of the processes within the forethought phase, a problem also identified in Silva and Fiorini's study (2021), in which focus group participants expressed different views on the meaning of goal setting. Similarly, most of the participants in Kegelaers et al.'s (2022) study reported generic goals, without explaining how to achieve them.

Antonini-Phillipe et al. (2020) could not identify any allusion to planning or goal setting by the participants and suggested that they apparently do not plan their practice. Only Dos Santos (2018) observed externally set goals, in this case by one participant's teacher. These different behaviors associated with goal-setting processes suggest biases related to the differences in the samples, as in the study by McPherson et al. (2019), which investigated the

musical practice of undergraduate students, compared with the study by López-Iñíguez and McPherson (2020), in which the sample consisted of an internationally acclaimed cellist.

Goal nature: Technical versus interpretative

Miksza and Tan's descriptive mixed-methods study (2015) reported planning awareness among their respondents, as several mentioned analyzing the structure of the piece and isolating excerpts to practice. This type of goal setting was classified by Suzuki and Mitchell (2022) as "basic", as opposed to the "interpretative" nature of the goals set by some participants of their study. Mornell et al. (2020) and Kegelaers et al. (2022) also posit this contrast, as the emphasis on goals related to technical practice may detract from the time devoted to goals associated with sound quality and musical interpretation. These data suggest the need to determine the nature of the goals when establishing them. Interventions in SRL (Self-Regulated Learning) can help bridge this gap, as in Hatfield's study (2016), in which participants were able to choose goals that were more performance related (or interpretive) rather than purely technical aspects.

Qualitative data from the retrieved interventions highlighted pre- and post-test changes in goal setting by the participants, such as setting more realistic and hierarchical goals that fostered self-efficacy and practice planning (Clark & Williamon, 2011; Hatfield, 2016; Kegelaers & Oudejans, 2020) and setting specific strategies to achieve these goals (Miksza et al., 2018). Miksza and Brenner (2023) perceived that the goals set were general at the beginning, then shifted to specific and problem-resolving goals, becoming, at the end of the study, general again as the participants were getting ready for a performance.

Performance Phase

In this phase, we highlight the processes of rehearsal and metacognitive strategies, help seeking, and time management.

Rehearsal Strategies

The case studies implemented by Byo and Cassidy (2008), Nielsen (2015), McPherson et al. (2019), Suzuki and Mitchell (2022), Silva and Fiorini (2021), and Liu (2023b) reported that their participants adopted repetition as the main practice rehearsal strategy. All these studies, except Nielsen's, divided participants into: a) those who isolated a difficult excerpt and repeated it until they were able to play without mistakes, varying tempo and rhythm, and then play it back into musical context; and b) those who practiced a difficult excerpt simply by repeating it a few times and moving on to new material, regardless of whether they had solved the error or not (classified as "Non-Planners" by Suzuki and Mitchell, 2022). Results from the quantitative studies also reported the prevalent use of rehearsal strategies such as

repetition by the participants (Miksza & Tan, 2015; Nielsen, 2004, 2012).

Metacognitive Strategies

The processes of self-recording and self-monitoring were the most reported by the intervention studies, exploring intervention instruments such as practice diaries (Hatfield, 2016; Kim, 2010; Miksza et al., 2018; Osborne et al., 2021; Pike, 2017) or video feedback (Boucher et al., 2020, 2021; Deniz, 2012).

Recording the employed learning strategies in a journal helped musicians to recognize practice abilities and personal resources (Dos Santos Silva et al., 2023; López-Iñiguez & McPherson, 2020; Osborne et al., 2020), and then to evaluate and adapt strategies to counter episodes of helplessness (Pike, 2017). This strategy could also foster perceived concentration and productivity (Miksza, 2015).

The intervention by Kim (2010) used the practice diary as a data collection and analysis tool, which proved effective in observing SRL and improved SRL in students who were not used to recording their daily practice. The practice diary facilitated a metacognitive approach to music practice, affecting self-observation, self-evaluation, and the forethought process of goal setting (Hatfield, 2016). However, “keeping records of events” displayed the third lowest mean scores in the descriptive study by Ritchie and Williamon (2013) and the lowest report frequency in the case study by (Woody, 2023).

The video feedback strategy in SRL of advanced musicians was first described in Nielsen’s 2001 observational study. In 2012, Deniz conducted an intervention on pre-service music teachers. Participants reported that watching videos of their performances helped them identify their goals and raised awareness of their instrumental gaps and skills. The post-test revealed an improvement in their musical performance and a decrease in their perceived performance anxiety (Deniz, 2012).

Nielsen (2015) and Kegelaers et al. (2022) observed that the participants frequently used video feedback, monitored their progress and evaluated the use of the strategies in their practice. Suzuki and Mitchell’s (2022) study reported that recording and listening to one’s own performance was the strategy adopted by a top-rated pianist, but only two participants (out of 11) in Silva and Fiorini’s (2021) study declared using this strategy. Mornell and colleagues (2020) highlighted the participants’ surprise when they became aware that this strategy increased concentration.

The prevalent use of repetition in the selected studies suggests that participants normally employed a limited repertoire of strategies in their daily practice. Kegelaers et al. (2022) reported a difference between the strategies acknowledged by the musicians and those that they actually employed in daily practice. Thus, the interventions focused on different strategies that promote self-observation and self-monitoring, enhancing a metacognitive

approach during practice. This allowed musicians to monitor their music learning as it occurred and to adapt strategies that optimize daily practice and lead to goal attainment (Liu, 2023b, 2023a; López-Íñiguez & McPherson, 2020). The role of monitoring in musical achievement was also statistically described by Ersozlu et al. (2017), who found monitoring processes to be predictors of performance success in instrumental classes. Nusseck and Spahn (2021) described a statistical increase in self-monitoring by their participants during the COVID-19 lockdown in Germany compared with the period before the pandemic.

The metacognitive process of self-instruction was observed in the form of self-asked questions and answers in Nielsen's (2001) study, in Kim (2010) and in Huang & Song (2021) as self-guided verbalizations, and in what Casas-Mas et al. (2019) classified as Private Singing. The authors reported increased metacognitive awareness and performance monitoring in participants, and Casas-Mas et al. (2019) also reported an improvement in sound quality.

Help Seeking

The help-seeking process in music learning and performance involves a proactive search for external feedback from teachers, family, peers, or audience, and the use of resources such as recordings, methods, and videos, among others. Nielsen's (2004) descriptive-correlational study revealed that participants reported less use of help-seeking strategies than cognitive strategies. Similarly, Dos Santos and Gerling (2011) observed that most participants did not search for external resources during their practice. However, in Ritchie and Williamon's descriptive study (2013), the item measuring the help-seeking process obtained the highest scores. Participants in the microanalysis intervention by Miksza et al. (2018) self-reported the adoption of help-seeking behaviors.

The processes of the Social Factor dimension were studied dos Santos Silva et al. (2022), through an online, social media-based music challenge. The participant reported that the interactions with peers allowed knowledge exchange and were a source of positive reinforcement, an outcome also mentioned by participants in Liu's (2023a) study.

Volioti and Williamon (2017) described differences between groups, and their questionnaire revealed that advanced students made greater use of professional recordings while preparing for a performance, when compared with professional participants. This difference was also statistically observed in Araújo's study (2016), in which the use of external resources decreased with age. Similar findings with pre-service music teachers were evidenced by the surveys of Boon (2020) and Kaleli (2021), which showed that students further along in their college education rely more on external resources such as peer assistance, when compared with first- and second-year participants. Similarly, in microanalysis studies, McPherson et al. (2019) and Osborne et al. (2021) observed that help-seeking

behavior was prevalent in participants with higher music performance scores (named "high-ability participants" by Osborne et al., 2021).

The results obtained by different study designs suggest that professional musicians rely less on external help during performance preparation, but that this proactive behavior is part of advanced students' practice and contributes to the attainment of performance excellence. During the learning phase in particular, the habit of seeking external resources during music practice promotes "modeling, listening, and critical appraisal" (Ritchie & Williamon, 2013, p. 113) in musicians.

Time Management

Regarding the relationship between SRL and time management, Ritchie and Williamon's (2013) study displayed the highest positive correlations between SRL and quantity of practice, and SRL and efficiency of practice, suggesting that the higher the degree of SRL reported, the greater the quantity and efficiency of music practice. Boon (2020), Topoğlu and Topoğlu's (2018), and Zhang et al.'s (2023) descriptive studies showed similar findings, registering higher SRL scores for students who practiced for larger amounts of time per day. Similarly, in the microanalysis intervention by Miksza et al. (2018), the highest achieving participant reported more time practicing.

Bonneville-Roussy and Bouffard (2015) found a strong statistical correlation between the use of SRL strategies and weekly practice time. However, results showed a negative correlation between practice time and musical achievement. This negative correlation was also reported by Araújo (2016) between the variables age (experience with the instrument) and quantity of daily practice, suggesting that self-regulation in music practice increases as musicians acquire professional experience, and therefore less practice time is needed to achieve goals. Accordingly, the observational study by Dos Santos and Gerling (2011) reported that the participant who presented the highest-rated performance was also the one who spent less time practicing a new piece. This was also mentioned by professional musicians, in the observational study by Vellacot and Ballantine (2022), who acknowledged that they accomplish their practice tasks in less time than when they were music students.

On this topic, there is a noteworthy difference in the relationship between the amount of practice and SRL scores and between the amount of practice and musical achievement. If musicians who practice for extended periods report greater use of SRL processes, why do more experienced musicians (with higher musical achievement) claim that they practice for less time? One hypothesis to consider would be that, since SRL processes are more closely linked to the learning and practice trajectory, individuals who spend more time in the practice room (i.e., more time dedicated to learning) may have more information to report about their strategies than professional musicians who spend more time in informal

practice activities such as rehearsals, performances, or even instrumental teaching, as pointed out by Vellacot and Ballantyne (2022), whose participants declared that they practiced more as university students than they do nowadays as professional musicians. Furthermore, since many of the studies included in this review measure self-regulation through self-report instruments, this could offer a plausible explanation for the contrasting results.

Observational studies by Silva and Fiorini (2021) and Turhal (2022) mentioned that their participants reported not having enough time to practice, suggesting poor management of the time available for daily practice. The interventions of Kim (2010), Clark and Williamon (2011), Miksza (2015), Pike (2017), and the case studies by López-Iñiguez and McPherson (2020) and dos Santos Silva et al. (2023) also mentioned the impact of SRL strategies on time management and consequent increase in practice efficiency as one of the main outcomes.

Self-Reflection: Self-Evaluation and Adaptation

Nielsen's observational study (2001) reported that students undertook self-evaluation by adopting criteria that were eventually revised and adapted. In 2015, Nielsen observed, in a different sample, that students revised their chosen strategies after watching recordings of their performances, and this adaptation improved their performances. Boucher et al. (2020) identified this process after their intervention, in which the experimental group participants modified the practice strategies after watching their videos. Similarly, the Kim (2010) and Hatfield (2016) interventions using practice diaries both reported an adaptation of strategies that was reflected in subsequent learning cycles.

One of the participants in Dos Santos' (2018) study demonstrated awareness of the elements of his practice that could be adapted, which the author described as an incipient self-reflection phase. In contrast, the case study by Antonini-Phillipe and colleagues (2020) did not report an adaptation of strategies or behaviors during the phases of preparing for music performance. Miksza and Brenner's (2023) study reported imprecise self-reflection entries in the practice diaries, which jeopardized the ability to assess the effectiveness of the practice and, therefore, the subsequent planning.

In addition to strategies, goals should be evaluated and adapted, especially if they need to be organized more hierarchically. Dos Santos (2018) observed goal evaluation and adaptation in only one participant, whilst participants in the study by Byo and Cassidy (2008) did not report evaluating and adapting the established goals, and maintained a fixed daily routine. Although Zimmerman's framework allocates goal setting to the forethought phase, its proper management also depends on the evaluation conducted during the self-reflection phase of the previous learning cycle.

Cyclical Feature

For McPherson et al. (2019), the participants demonstrated little awareness of the processes during the forethought and self-reflection phases, leading the authors to suggest that self-reflective assessments may result in more efficient goal setting and, consequently, more efficient practice sessions. Osborne et al.'s intervention (2021) promoted a regular self-evaluation through microanalysis, which affected the planning of subsequent sessions and the adjustment of practice and performance goals (short- and long-term goals). Statistically, in the descriptive studies of both Miksza and Tan (2015) and Hatfield et al. (2017), self-reflection predicted the processes of the forethought phase. Peistaraitė and Clark's (2020) quantitative analysis study about emotion regulation and SRL found significant positive correlations between the self-reflection process of reappraisal and the forethought processes of goal setting and self-efficacy. The results relate to Zimmerman's framework (1990, 2000), which states that the self-reflection phase feeds into the next learning cycle. This was also the case in this review, in which we can see a trend in goal-setting issues and incipient self-reflective habits that, stimulated by the interventions, showed positive results in practice and performance.

Suggestions for Future Research

In this systematic review, we aimed to investigate the evidence on SRL processes and strategies by advanced and professional musicians, analyzing the findings and development of the published research on this topic.

All the selected articles highlight the role of music teachers in promoting SRL strategies. However, only four articles included exclusively pre-service music teachers in the sample (Boon, 2020; Deniz, 2012; Kaleli, 2021; Topoğlu & Topoğlu, 2018). While there may be some resistance to interventions in the teaching methods of experienced instrumental teachers, future research could focus on music teachers' training as one of the ways to bridge the gap between the theoretical knowledge on this topic and the observed SRL in musicians. Interventions that provide prospective music teachers with SRL strategies will be beneficial for their future professional performance as well as their musical proficiency.

Regarding the strategies employed, observational and quantitative studies report a prevalence of passive rehearsal strategies in the participants' practice habits, such as repetition. This result indicates that advanced-level musicians still rely on strategies that require minimal cognitive effort to execute (Weinstein et al., 2000). As discussed, most interventions have explored metacognitive strategies of self-monitoring and self-recording, and reported positive changes in the participants' SRL processes. Future intervention studies could include a follow-up with the participants to determine the prevalence of the changes over time

and confirm its findings. Additionally, studies could observe the modeling of metacognitive strategies by instrument teachers for their students.

If music education institutions were to promote self-regulation in the early years of instrumental studies, would research still be so concerned with the quantity of practice? Since the benchmark article by Ericsson et al. (1993)—the most cited paper in music practice of all time (according to How et al., 2022, p. 9)—researchers have been investigating the factors that can make instrumental practice efficient (other than the amount of time employed). Yet why do we observe a prevalence of passive rehearsal strategies, poor goal setting, and difficulties in strategy evaluation and adaptation? Music education could benefit from the implementation of strategies suggested by recent research, including changes of the curricula of musicians' initial training, investment in teacher training, and the integration of scientific findings in instrumental teaching programs.

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The Authors declare that there is no conflict of interest.

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4.2. Artigo 2: A prática instrumental diária de graduandos em Música: estratégias de aprendizagem e autorregulação

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A prática instrumental diária de graduandos em Música: estratégias de aprendizagem e autorregulação

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Resumo: Partindo da tendência da literatura em investigar os processos cognitivos e metacognitivos envolvidos na aprendizagem e performance musical, este trabalho teve o objetivo de identificar as estratégias aplicadas na prática diária de alunos da Graduação em Música de uma universidade pública brasileira. O questionário desenvolvido por Araújo (2016a) foi usado como instrumento para discussão em duas sessões de grupo focal: a primeira com três participantes violonistas, dois flautistas e um contrabaixista; e a segunda com cinco violonistas. Os dados foram analisados por meio de transcrições completas das sessões. Resultados indicam que os alunos fazem uso de estratégias que cobrem as seis dimensões psicológicas da aprendizagem, entretanto apresentam dificuldade em processos como estabelecimento de objetivos, gerenciamento do tempo e adaptação de estratégias ao iniciar um novo processo de aprendizagem.

Palavras-chave: Estratégias de aprendizagem. Prática de instrumento musical. Performance musical. Grupo focal. Autorregulação da aprendizagem.

Daily instrument practice among music undergraduates: self-regulated learning strategies

Abstract: Based on the literature's tendency to investigate the cognitive and metacognitive processes involved in learning and performing music, this work aimed to identify the learning strategies applied in the daily practice of undergraduate music students enrolled at a Brazilian public university. The questionnaire developed by Araújo (2016a) was administered as an instrument for discussion in two focus group sessions, the first comprising three guitarists, two flutists, and one double bassist. The second group had five guitarists. Data were analyzed using full transcripts of the sessions. Results indicate that students use strategies that cover the six psychological dimensions of learning, however, they have difficulty in processes such as goal setting, time management, and adapting strategies.

Keywords: Learning strategies. Music practice. Music performance. Focus group. Self-regulation.

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Desde o primeiro contato com um instrumento, a principal atividade de um músico é a prática diária. O intervalo de tempo entre as aulas de instrumento pode ser usado para aprender um novo repertório e desenvolver habilidades de técnica e leitura musical. No entanto, a quantidade de tempo destinada à prática não é o único fator que garante o sucesso na aprendizagem musical, mas sim elementos e ações aplicados na melhoria da performance, juntamente com a consciência sobre a estrutura deste estudo diário (BONNEVILLE-ROUSSY; BOUFFARD, 2014: 700. ERICSSON; KRAMPE; TESCH-RÖMER, 1993: 366. SLOBODA *et al.*, 1996: 288. WILLIAMON; VALENTINE, 2000: 373). A prática deliberada refere-se ao estudo individual do instrumento musical direcionado por um professor qualificado (BONNEVILLE-ROUSSY; BOUFFARD, 2014: 697. ERICSSON; KRAMPE; TESCH-RÖMER, 1993: 368). Nesta prática são incluídos processos como o estabelecimento de objetivos pessoais, a concentração durante realização da tarefa e a persistência em corrigir erros e resolver seções da música que apresentam dificuldades (ARAÚJO, 2016a: 2. ERICSSON; KRAMPE; TESCH-RÖMER, 1993: 367).

Autores relacionam o nível avançado em performance musical com a grande quantidade de tempo dedicado à prática deliberada durante os anos de desenvolvimento técnico-musical. Esses músicos avançados tendem a esforçarem-se mais para manter a concentração durante sua prática diária do que músicos menos experientes e entendem que a qualidade de sua performance está relacionada com a qualidade do esforço empregado. Além disso, têm o hábito constante de monitorar e organizar a própria prática, colocando sua atenção no repertório que estão praticando e na maneira como pode ser melhorado, empregando estratégias de aprendizagem no tempo correto e de maneira adequada (ERICSSON, 2008: 991. MCPHERSON, 2005: 27. PIKE, 2017: 8).

Para alcançar este estágio de eficiência, as estratégias de prática musical devem ser transmitidas aos estudantes de música para que estes tenham a oportunidade de se desenvolver plenamente como músicos (LEON-GUERRERO, 2008: 93. MCPHERSON; NIELSEN; RENWICK, 2013: 369). O pensamento metacognitivo, isto é, o conhecimento sobre quais fatores e de que maneira afetam nosso processo de aquisição de conhecimento, deve ser estimulado desde o início da trajetória de aprendizagem, pois vai além da capacidade de aprender cognitivamente uma nova informação, levando à reflexão sobre o processo de aprendizado em si (BORUCHOVITCH, 1993: 23. FLAVELL, 1979: 907).

Em complemento às pesquisas que trabalham com o estudo da performance de músicos avançados, é necessário também conhecer os processos que são adquiridos pelos alunos durante o período inicial de aprendizagem até se tornarem estudantes de música independentes (MCPHERSON; ZIMMERMAN, 2011: 131). Os processos que ativam as qualidades necessárias para que um músico seja independente em sua prática musical possuem características semelhantes aos processos de aprendizagem autorregulada. A Autorregulação da Aprendizagem ligada à Teoria Social Cognitiva refere-se aos pensamentos, sentimentos e ações que são planejados e sistematicamente adaptados, quando necessário, para otimizar a motivação e a aprendizagem (ZIMMERMAN, 1989: 329, 2000: 14). A produção de McPherson e de seus colaboradores tem contribuído substancialmente para o avanço do conhecimento na área, sobretudo ao relacionar e aplicar a visão sociocognitiva da Autorregulação da Aprendizagem na música (MCPHERSON; RENWICK, 2001. MCPHERSON, 2005. MCPHERSON; ZIMMERMAN, 2011. VARELA, 2014: 3.).

O aprendizado musical investigado à luz deste construto pode permitir a compreensão da trajetória de aprendizagem na direção de uma construção de conhecimento mais eficiente: a interação entre os processos sociais, cognitivos, afetivos e motivacionais pode ser a base do aprendizado musical (MCPHERSON; ZIMMERMAN, 2011: 133). A autorregulação é descrita como um processo cíclico e recíproco, e seu papel na trajetória de aprendizagem pode ser distribuído de maneira temporal, como organizado por Zimmerman (1990: 190, 1998: 82, 2000) em um modelo de aplicação que nos auxilia a compreender a atuação dos processos autorregulatórios

antes (fase de antecipação), durante (fase de controle volitivo) e depois (fase de autorreflexão) da execução de uma tarefa.

Na primeira fase do modelo (antecipação), o aprendiz emprega ações e estratégias de análise da tarefa e de estabelecimento de objetivos, motivado pelas suas crenças de autoeficácia, pelas suas expectativas de resultado e pela valoração da tarefa em questão. Na fase de controle volitivo, o autocontrole e a auto-observação são processos-chave para o correto emprego das estratégias de aprendizagem, manutenção do foco, automonitoramento, entre outros subprocessos. Já na terceira fase, de autorreflexão, o aprendiz realiza sua autoavaliação e lida com suas autorreações, que vão retroalimentar o próximo ciclo de aprendizagem, influenciando a seguinte fase de antecipação do modelo (ZIMMERMAN, 2000: 24).

Esta abordagem pode auxiliar os alunos a autoestabelecer objetivos, desenvolver o pensamento metacognitivo, planejar e gerenciar o tempo, controlar o ambiente, exercer a autoavaliação e procurar ativamente por recursos e ajuda de seus professores e colegas (ARAÚJO, 2016a: 2. MCPHERSON; ZIMMERMAN, 2011: 132), processos estes que estão incluídos em seis dimensões psicológicas e nos auxiliam a compreender pontos específicos de observação e aplicação de estratégias de aprendizagem.

1. Dimensões da Aprendizagem Autorregulada

A autorregulação refere-se a um conjunto de processos que os alunos selecionam com o objetivo de cumprir uma tarefa, não sendo somente uma característica fixa que um indivíduo possui ou não, mas uma habilidade que pode ser ensinada e aprendida (ZIMMERMAN, 1998: 74). O grau em que esses processos são empregados está apoiado em seis dimensões que podem ser aplicadas em diversas disciplinas do conhecimento, inclusive na música (MCPHERSON; NIELSEN; RENWICK, 2013: 359. MCPHERSON; RENWICK, 2001: 170. MCPHERSON; ZIMMERMAN, 2011: 133. ZIMMERMAN; RISEMBERG, 1997). Os autores McPherson e Zimmerman (2011: 134) organizaram cada dimensão em um quadro (Quadro 1), relacionando-as aos processos sociais (ou externos) que são desempenhados no início do processo de aprendizagem e aos processos autorregulatórios, desempenhados por aprendizes autorregulados, geralmente em fase avançada de aprendizagem.

Dimensão psicológica	Processos externos	Processos autorregulatórios
Motivo	Reforço externamente adquirido	Sentir-se livre e capaz de decidir quando praticar
Método	Estratégias são modeladas ou socialmente guiadas	Planejar, empregar e adequar estratégias
Tempo	Tempo gerenciado externamente	Tempo autogerenciado
Comportamento	Performance é externamente monitorada e avaliada	Automonitoramento, avaliação e controle da performance
Ambiente	Ambiente estruturado por terceiros	Ambiente estruturado de maneira independente
Fatores sociais	Ajuda providenciada por outros	Busca proativa por ajuda

Quadro 1: Dimensões psicológicas da aprendizagem. Adaptada de McPherson e Zimmerman (2011: 134).

Os processos externos têm um papel substancial no início da trajetória de aprendizagem musical, pois é a partir deles que o músico aprenderá seu repertório de estratégias, desenvolverá seus processos autorregulatórios e habilidades para criar e adaptar novas estratégias e monitorará

seu comportamento para permanecer na atividade sob as mais diversas condições (MCPHERSON; NIELSEN; RENWICK, 2013: 360).

Os indivíduos, no curso de sua aprendizagem, utilizam processos autorregulatórios para adquirir conhecimento e habilidades acadêmicas; além disso, para cada processo, existem estratégias que devem ser aplicadas, avaliadas e adaptadas para a obtenção de melhores resultados (ZIMMERMAN, 1990: 185).

2. Estratégias de Aprendizagem Autorregulada

As estratégias de aprendizagem são ações empregadas pelo aprendiz com o objetivo de completar uma tarefa ou adquirir informação (DEMBO; SELI, 2016: 280). Inserindo este conceito na Autorregulação da Aprendizagem, as estratégias de aprendizagem autorregulada carregam em si os processos de agência humana, estabelecimento de objetivos e auto-observação (ZIMMERMAN; MARTINEZ-PONS, 1986: 615). Agência humana é a capacidade de alterar o próprio funcionamento e intervir nas circunstâncias da vida (BANDURA, 2006: 164). Auto-observação é a ação de monitorar elementos de nosso próprio comportamento, as condições nas quais acontece nossa aprendizagem e os resultados que obtemos do nosso desempenho (ZIMMERMAN, 2000: 19).

A criação, seleção e uso de uma estratégia envolve uma série de processos, como “cognição, metacognição, motivação, afeto e comportamento”¹ (WEINSTEIN; ACEE; JUNG, 2011: 45, tradução nossa). As estratégias de aprendizagem devem ser planejadas considerando-se as influências pessoais, comportamentais e ambientais que atuam sobre o indivíduo. Conhecendo tais influências, deve-se selecionar estratégias que funcionem para si mesmo, tendo em vista que nenhuma estratégia funciona de maneira totalmente adequada para todas as pessoas, tampouco em todas as ocasiões (NIELSEN, 2001: 156, 2015: 236. ZIMMERMAN, 2000: 17). Logo, ao final de um ciclo de aprendizagem, as estratégias aplicadas e os objetivos selecionados devem ser ajustados de acordo com o desempenho na tarefa, a autoavaliação ou os *feedbacks* recebidos (ZIMMERMAN, 2000: 23).

Na prática diária de um instrumento musical, o uso de estratégias também depende da aquisição de conhecimentos que podem ser organizados em três categorias: conhecimento declarativo (saber a definição básica da estratégia), procedimental (saber como usar a estratégia) e condicional (saber em quais situações a estratégia pode ser mais útil) (ZIMMERMAN, 1990: 192. ZIMMERMAN; KITSANTAS, 2005: 403). No estudo do violão, para ilustrar, a estratégia básica de tocar uma escala cromática depende de o aluno conhecer que esta escala consiste em notas musicais que entre si apresentam intervalo de meio tom (conhecimento declarativo), saber que no violão se toca a escala distribuindo e pressionando os dedos da mão esquerda no braço do instrumento, avançando pelas casas, sem saltar, enquanto os dedos da mão direita tangem as cordas correspondentes na região da boca do instrumento (conhecimento procedimental), e saber que esta prática é benéfica para o exercício mecânico da mão esquerda e também para trabalhar sincronia entre as mãos e sonoridade (conhecimento condicional).

Neste trabalho, realizamos um levantamento de estratégias de estudo e prática musical obtido por meio de uma discussão no formato de grupo focal com alunos de Graduação em Música. As estratégias foram distribuídas segundo as seis dimensões psicológicas da aprendizagem autorregulada (MCPHERSON; ZIMMERMAN, 2011: 134) e categorizadas segundo a taxonomia de Weinstein e Mayer (1986: 316) e Weinstein, Acee e Jung (2011: 47):

¹ “cognition, metacognition, motivation, affect, and behavior” (WEINSTEIN; ACEE; JUNG, 2011: 45).

(a) Estratégias de ensaio – aprendizagem por meio da repetição do conteúdo “pela fala ou pela escrita do material” (BORUCHOVITCH, 1993: 24). Comumente usadas em seções da música que ainda não foram dominadas (MCPHERSON; NIELSEN; RENWICK, 2013: 362). Podem ser divididas em estratégias de ensaio passivas, que não requerem um processamento cognitivo elaborado, como repetir uma peça do começo ao fim várias vezes até que o aluno toque sem apresentar erros. Um exemplo de estratégia de ensaio ativa pode ser selecionar um trecho de uma obra que apresente dificuldade e repeti-lo com o uso do metrônomo, começando por um andamento lento e ir aumentando gradativamente. O uso desta estratégia requer uma atividade cognitiva mais elaborada que a primeira.

(b) Estratégias de elaboração – visando memorização, consistem em modificar ou adicionar conteúdo ao material a ser trabalhado, conectando-o com o conhecimento antigo (BORUCHOVITCH, 1993: 24) para ser assimilado de maneira duradoura. Na música, podemos relacionar com as ações de selecionar um trecho de dificuldade técnica e mudar a rítmica ou a velocidade do trecho para trabalhar articulação, ou ainda anotar digitações e dedilhados. Por estar em uma categoria de estratégias ligadas ao fator social (MCPHERSON; NIELSEN; RENWICK, 2013: 362. WEINSTEIN; ACEE; JUNG, 2011: 48), pode-se incluir apresentar a peça ou discutir aspectos interpretativos com colegas.

(c) Estratégias de organização – estruturar e organizar o novo conhecimento adquirido, principalmente de maneira visual. Na música, pode-se pensar em organizar mapas de estruturas e formas musicais com o repertório que está sendo trabalhado ou visualizar mentalmente uma situação de performance. Uma forma de organização visual do trabalho é a manutenção do registro de prática por meio de anotações, como um diário de estudos (MCPHERSON; NIELSEN; RENWICK, 2013: 363).

As estratégias não são aquisições permanentes ou um conjunto de ferramentas que servirá para qualquer situação de aprendizagem, mas funcionam de maneira pessoal e temporária. Conforme as habilidades e a experiência do aluno aumentam, as estratégias usadas podem perder sua eficácia e ser adaptadas ou substituídas por outras (NIELSEN, 2001: 156. ZIMMERMAN, 2000: 17).

O objetivo geral deste estudo foi o de conhecer as estratégias aplicadas por alunos de Graduação em Música durante sua prática diária de instrumento, à luz da Autorregulação da Aprendizagem e das seis dimensões psicológicas da aprendizagem. Relacionando a teoria com o cotidiano de prática destes alunos, buscamos responder a duas perguntas:

- a. Os graduandos em Música conhecem e aplicam estratégias de aprendizagem em seu estudo diário de instrumento musical?
- b. As estratégias mencionadas pelos alunos cobrem as seis dimensões psicológicas da aprendizagem autorregulada?

3. Método

Para investigar a prática musical de alunos de Graduação em Música, utilizamos um questionário como instrumento de medida qualitativa, aplicado na forma de grupo focal.

O grupo focal é um método de pesquisa que visa à obtenção de dados que talvez não surgiram em outros meios de coleta, como questionários, entrevistas individuais ou testes. Um moderador é responsável pela condução e pela elaboração de um roteiro de questões, segundo os objetivos da pesquisa (WESTPHAL; BOGUS; FARIA, 1996: 473). Por meio deste método

é possível identificar e avaliar as impressões individuais e os sentimentos sobre determinado tópico, ideias ou sobre dados previamente coletados (JARVIS; BARBERENA, 2008: 289).

Nesta pesquisa utilizamos o grupo focal para obter dados sobre as reflexões suscitadas pelo questionário de Araújo (2016a, 2016b, 2016c), bem como impressões, relatos de experiências e sentimentos sobre o uso de estratégias de aprendizagem na organização do estudo diário de violão e de outros instrumentos e demais dados presentes na discussão entre os participantes. A preparação do grupo focal contou com a observação de uma série de itens, buscando máxima eficiência na aplicação do método, como apontados em Jarvis e Barberena (2008: 288): participantes (amostra, moderador), estrutura (instrumento de coleta de dados), ambiente, registro e procedimento de análise de dados.

Ao optar pelo formato de grupo focal e não pela entrevista, evitamos uma linha de diálogo bilateral, apenas entre entrevistador e interlocutor. O fato de os alunos serem maioria durante o experimento pode minimizar eventuais interferências que o moderador possa ter sobre os alunos e permite que diferentes posições sobre a prática diária sejam levantadas e discutidas em grupo.

3.1. Participantes

Participaram do estudo 11 alunos de uma universidade brasileira, distribuídos em dois grupos. O Grupo 1 (G1) foi formado por seis alunos de diversos instrumentos (Quadro 2), e o Grupo 2 (G2) foi formado por cinco violonistas (Quadro 3). A fim de manter a participação anônima, os participantes serão identificados segundo números aleatórios. O Grupo 1 foi formado pelos participantes:

Participante	Instrumento	Idade	Gênero
Participante 1 (P1)	Flauta transversal	20	Masculino
Participante 2 (P2)	Violão	21	Feminino
Participante 3 (P3)	Violão	20	Masculino
Participante 4 (P4)	Flauta transversal	20	Feminino
Participante 5 (P5)	Contrabaixo	20	Masculino
Participante 6 (P6)	Violão	25	Masculino

Quadro 2: Informações sobre participantes do Grupo 1

O Grupo 2 reuniu os seguintes violonistas:

Participante	Instrumento	Idade	Gênero
Participante 7 (P7)	Violão	29	Masculino
Participante 8 (P8)	Violão	23	Masculino
Participante 9 (P9)	Violão	22	Masculino
Participante 10 (P10)	Violão	29	Masculino
Participante 11 (P11)	Violão	20	Masculino

Quadro 3: Informações sobre participantes do Grupo 2

3.2. Instrumento de coleta de dados

O questionário desenvolvido e validado ($\alpha = 0,74 - 0,86$) por Araújo (2016a, 2016b. ARAÚJO; HEIN, 2018) foi criado com o objetivo de investigar a autorregulação em músicos avançados durante sua prática diária. O mesmo é dividido em duas seções, a primeira intitulada “Atitudes no processo de estudo”, e a segunda, “Sensações no processo de estudo”.

A primeira seção é dividida em quatro partes com afirmações referentes a processos autorregulatórios presentes nas seis dimensões da autorregulação:

Parte 1 – Dimensão Motivo, processos autorregulatórios de estabelecimento de objetivos (p. ex., “estabeleço objetivos para as minhas sessões de estudo” e “percebo que meus objetivos apresentam desafio”).

Parte 2 – Dimensão Método, processos autorregulatórios de seleção e uso de estratégias (p. ex., “sei quando e em que contexto as minhas estratégias de estudo serão mais eficazes”).

Parte 3 – Dimensão Tempo (p. ex., “planejo o tempo das minhas sessões de estudo”), Dimensão Comportamento (“avalio o progresso em direção aos meus objetivos”), Dimensão Ambiente (“organizo o ambiente das minhas sessões de estudo”) e Dimensão Fatores Sociais (“solicito ajuda de outras pessoas – professores, colegas, compositores, musicólogos ou especialistas”).

Parte 4 – Conceitos como o construto da Autoeficácia (“sou capaz de atingir os meus objetivos de maneira satisfatória”) e auto-observação (“Conheço minhas qualidades e dificuldades”).

A segunda seção diz respeito a sensações no processo de estudo relacionadas à Teoria do Fluxo (p. ex., “sinto que o tempo passa diferente do que o normal” e “estou completamente focado na atividade em curso”). O estado de fluxo pode ser definido pela absorção completa em uma atividade com extrema concentração, perda da sensação de tempo, entre outras sensações (NAKAMURA; CSIKSZENTMIHALYI, 2002: 90).

3.3. Procedimento de coleta de dados

Os alunos foram contatados pessoalmente na universidade durante a aula de música de câmara ou aula de violão, oportunidade em que foram avisados que a participação ou não participação não interferiria de maneira alguma em sua avaliação semestral. O estudo foi previamente avaliado e aprovado pelo Comitê de Ética em Pesquisa nas Ciências Humanas e Sociais da UNICAMP (CAAE 09319219.8.0000.8142).

As sessões ocorreram dentro de uma sala de aula da universidade. Os alunos receberam o Termo de Consentimento Livre e Esclarecido e o assinaram após a leitura.

O questionário foi apresentado aos participantes juntamente com uma breve explicação sobre o seu funcionamento. Após resolução de dúvidas, todos os alunos preencheram o instrumento de coleta de dados.

A primeira sessão (Grupo 1) ocorreu no dia 19 de setembro de 2019, às 16h, e teve duração de aproximadamente 1 hora e 3 minutos. A sessão do Grupo 2 aconteceu no dia 27 de novembro de 2019, às 12h, e teve duração de aproximadamente 47 minutos.

3.4. Procedimento de registro e análise de dados

As sessões foram registradas com um gravador digital e, posteriormente, transcritas em sua totalidade. O conteúdo foi analisado com auxílio do *software* Nvivo 11. A transcrição completa das sessões pode ser obtida com a primeira autora, mediante contato por e-mail.

4. Resultados e discussão

O grupo focal iniciou-se com perguntas feitas pela pesquisadora acerca das impressões dos alunos quanto ao questionário, que serviu como um guia introdutório à conversa sobre prática diária e reflexões sobre suas estratégias de aprendizagem. A partir das respostas, foram feitas perguntas a respeito das estratégias que os alunos declararam utilizar. Os participantes ficaram livres para refletir, discutir ou discordar sobre o tema. As primeiras três perguntas foram:

- a. Qual item foi novidade para vocês? Existe alguma estratégia que vocês nunca haviam pensado em aplicar?
- b. Havia algum item que parecia muito óbvio? Por exemplo, não é possível estudar sem...?
- c. Algum item parece impossível? Ou demasiadamente específico?

Quanto à primeira questão, dois alunos disseram que o questionário levantou reflexões inéditas: “Na verdade, me colocou um pouco contra a parede, como ‘você deveria fazer isso’. Muitas coisas eu respondi como ‘raramente’ e deveria ser ‘sempre’”. Outro participante concordou: “Eu tive a mesma sensação. Eu nunca tenho tempo para analisar como é meu estudo. Foi meio um choque, de pensar o que realmente está ‘rolando’”.

As demais respostas estão organizadas de acordo com as seis dimensões da aprendizagem autorregulada (MCPHERSON; ZIMMERMAN, 2011: 134. ZIMMERMAN; RISEMBERG, 1997).

4.1. Dimensão Motivo

Nesta dimensão destacaremos o processo autorregulatório de autoestabelecimento de objetivos. Nas duas sessões os participantes declararam não estabelecer objetivos a curto prazo, principalmente ao pensar em minutos: “Geralmente eu estabeleço objetivos a médio e longo prazo, mas nunca pensei em estabelecer a curto prazo, só quando li aqui” (P3).

Nas duas sessões, a resposta para a pergunta (b) foi o item 1 (“estabeleço objetivos para minhas sessões de estudo”), e aqui destacamos dois comentários:

P1: “Para mim, foram os objetivos do estudo. Acho que não tem como estudar sem um objetivo.”

Para P10, o item 1:

Não sei se chega a ser óbvio, mas, quanto a esta frase, eu acho que depende do nível de especificação, por exemplo: estudar determinado trecho com metrônomo, saindo de 50 bpm e vou chegar até 90 bpm em 30 minutos. Mas pode ser também um objetivo apenas: vou treinar esta peça. Então, um objetivo é superespecífico e outro amplo; e pode ser qualquer coisa. Mas penso que estabelecer objetivos em uma sessão de estudo, de alguma maneira, todo mundo faz.

A questão levantada por P10 mostra que nem sempre é claro o que se entende por estabelecimento de objetivos. A literatura nos mostra que aprendizes autorregulados estabelecem seus objetivos de maneira hierárquica, organizados de acordo com a proximidade temporal e também como reguladores de objetivos mais distantes (ARAÚJO, 2016a: 4. MCPHERSON;

ZIMMERMAN, 2011: 140. NIELSEN, 2001: 159. ZIMMERMAN, 2000: 17). Sem uma ideia explícita de como realizar esta seleção, é possível compreender como objetivo simplesmente “vou estudar violão” e iniciar uma sessão de prática tocando qualquer peça de seu repertório sem atentar-se para trechos a serem resolvidos ou realizar algum trabalho com metrônomo. Sem controle do tempo, passa para outra peça do repertório e reproduz as mesmas ações. Ao final do período, o objetivo daquela sessão de estudo nunca foi estabelecido.

Estes dados podem ser cruzados com a resposta da primeira questão, onde dois alunos, um em cada grupo, mencionaram nunca haver pensado em estabelecer objetivos a curto prazo. Isto nos mostra que possivelmente os aprendizes tenham o conhecimento de que precisam estabelecer algum objetivo em uma sessão de prática, mas talvez não saibam como organizar estas metas de maneira hierárquica para preencher uma sessão de estudos.

4.2. Dimensão Método

Como citado na introdução, esta dimensão contém os processos de planejamento e uso de estratégias de aprendizagem. Nesta seção, vamos apresentar discussões geradas por itens do questionário e também um levantamento de estratégias feito pelos alunos, a partir da pergunta: “o que vocês fazem para memorizar uma peça?”.

Dentro desta questão foi discutido o item “sei o que devo fazer para completar as atividades musicais”. Um dos alunos (P10) levantou a seguinte questão:

Fico pensando se todo mundo não acha que sabe o que deve fazer. Muitas vezes eu acho que para conseguir tocar determinado trecho complicado eu tenho que fazer determinada coisa, mas aí um professor que tem outra abordagem fala: essa estratégia está errada. Então esse é um item no qual eu fiquei pensando. Às vezes eu acho que eu tenho noção do que eu preciso fazer, mas eu talvez não tenha.

Esta reflexão traz o que Weinstein, Husman e Dierking (2000: 730) e Nielsen (2001: 160) definem como planejamento estratégico, que consiste na seleção de estratégias destinadas a cumprir determinada tarefa ou alcançar determinado objetivo. Outro item do questionário (“utilizo estratégias que funcionaram no passado”) foi interpretado como uma possível deficiência no uso de estratégias por P8:

Eu sempre faço isso com ligados. Toda vez que eu tenho um problema, eu uso a mesma sequência de movimentos que aprendi quando comecei a estudar violão. Mas eu sinto que agora eu precisaria buscar outras alternativas, porque a dificuldade do meu repertório está em outro nível.

Os dois apontamentos anteriores ilustram o fato de que o aprendiz autorregulado pode aprender onde aplicar determinada estratégia (neste caso, resolução de dificuldade com ligados no violão) e também avaliar até que ponto a estratégia ainda é útil para o repertório que está sendo trabalhado. A internalização de estratégias de aprendizagem inclui a habilidade de criar novas estratégias e ajustá-las conforme a complexidade da tarefa. Músicos autorregulados criam estratégias mais avançadas para melhorar sua performance (NIELSEN, 2001: 156. ZIMMERMAN, 1990: 192).

Quanto ao levantamento de estratégias de memorização, as respostas dos alunos podem ser analisadas de acordo com as categorias de estratégias elencadas por Weinstein, Acee e Jung (2011: 47) e discutidas na música por Nielsen (2001: 162, 2015: 241) e McPherson, Nielsen e Renwick (2013: 361).

Como exemplo de estratégias de ensaio passivas, P3 declarou: “Eu decorei recentemente a peça que eu estava tocando com o P1 porque ele queria gravar, mas memorizei de tanto repetir, não porque estudei para isso”. Este é um exemplo de exposição repetitiva ao conteúdo a ser aprendido que pode resultar na memorização. No entanto, este tipo de ação não envolve uma atividade cognitiva mais complexa, o que pode levar ao esquecimento rápido (BORUCHOVITCH, 1993: 24. WEINSTEIN; ACEE; JUNG, 2011: 47). No já mencionado estudo feito por McPherson e Renwick (2001: 174), a análise mostra que os aprendizes iniciantes usavam até 90% de seu tempo de prática diária apenas repetindo o repertório do começo ao fim.

Já as estratégias de ensaio ativas requerem uma atividade cognitiva mais exigente, o que pode auxiliar a evitar lapsos de memória durante a performance. P1 declarou: “[...] decoro por frase. Geralmente a gente escuta bastante gravação, já tem na cabeça depois que tem as notas resolvidas. Vou pelas frases, repito se acertei; quando vi que já fixei, passo para a próxima e vou juntando”. Esta estratégia requer a consciência sobre o que precisa ser trabalhado, a divisão da peça em trechos menores e a busca por material externo (gravações).

A seleção e a representação gráfica da digitação e do dedilhado de uma peça podem auxiliar na memorização, como declarou P2: “Eu não planejo decorar, mas o que me ajuda é anotar a digitação” – o que pode ser classificada como estratégia de elaboração. Outros exemplos seriam apresentar a peça para amigos ou mudar a rítmica de trechos.

Quando a estratégia envolve a ressignificação do material abstrato de maneira visual ou gráfica, trata-se de estratégia de organização. P3 declarou: “Eu tento visualizar o panorama. Aí eu divido em grandes seções e, dentro delas, vou tentando achar os padrões que existem. Ou também tentar entender a harmonia, isso me ajuda a decorar a peça”. Elaborar um esquema visual da forma musical da obra contribui para a aprendizagem e para a memorização do repertório, organizando o conteúdo.

Outra aplicação na música desta categoria de estratégia seria criar imagens mentais da obra, imaginar a partitura enquanto escuta alguma gravação da peça, imaginar as posições do violão enquanto lê a partitura ou também imaginar a música e as posições do violão. Esta atividade requer alto processamento cognitivo e pode contribuir para a memorização da peça.

4.3. Dimensão Tempo

O gerenciamento do tempo de prática instrumental é variável de medida presente em estudos empíricos que investigam autorregulação e performance musical, seja esta relacionada aos resultados de performance musical e expertise (ARAÚJO, 2016a. BONEVILLE-ROUSSY; BOUFFARD, 2014), a escores de autorregulação (BOON, 2020) ou a estratégias de aprendizagem (BYO; CASSIDY, 2008. MCPHERSON, 2005. MIKSZA, 2012. MORNELL; OSBORNE; MCPHERSON, 2020).

Para investigar a dimensão do tempo neste estudo, solicitamos aos participantes que relatassem quanto tempo de prática diária do instrumento era por eles considerado ideal e quanto tempo era de fato possível alocar para o estudo.

Quanto à quantidade ideal, no Grupo 1 três participantes disseram que gostariam de estudar instrumento durante oito horas por dia; um aluno, seis horas; e um aluno, quatro horas. Já no Grupo 2, quatro alunos declararam que o ideal seriam quatro horas de prática diária, e

um aluno disse que três horas seriam suficientes: “Eu já não considero ideal estudar muitas horas seguidas. Hoje acho que duas horas bem aproveitadas funcionam bem, que é o que eu mais ou menos faço, dividindo em duas sessões de uma hora. Três horas seria o ideal” (P8).

A partir desta reflexão, alguns alunos deram exemplos de gerenciamento do tempo, dividindo o estudo por horas: “O ideal seria uma primeira sessão de duas horas, depois duas sessões de uma hora cada. Esse intervalo seria para deixar o corpo relaxar para começar outra sessão de estudo” (P8); ou então por conteúdo: “Eu comecei a fazer duas horas de técnica pura (com intervalo), depois eu faço a parte de técnica aplicada e performance, que varia de acordo com o tamanho do repertório” (P10).

No entanto, nenhum aluno declarou conseguir praticar durante o tempo que considerava necessário para atingir seus objetivos: no Grupo 1, dois alunos declararam que estudam durante três horas, e três alunos de quatro a seis horas diárias. Já no Grupo 2, um aluno declarou estudar durante duas horas, outro participante por 1 hora e 30 minutos, e dois alunos disseram que não conseguem praticar diariamente. Ao serem questionados sobre o que mais “atrapalharia” sua prática diária, os alunos mencionaram que as disciplinas da graduação ocupavam a maior parte de seu tempo, outros disseram que o trabalho (como professores ou músicos de orquestras) e os ensaios em grupo eram responsáveis pela menor quantidade de horas disponíveis para praticar. O relato dos alunos está em conformidade com um estudo exploratório de amostra similar, que identificou dificuldades no uso do tempo na prática diária por parte dos alunos (MORNELL; OSBORNE; MCPHERSON, 2020: 4).

O estudo de Ericsson, Krampe e Tesch-Römer (1993: 391) avaliou o tempo de prática deliberada em instrumentistas de nível avançado e identificou uma média de quatro horas diárias dedicadas a esta atividade, sugerindo a possibilidade de uma quantidade máxima de horas nas quais a prática instrumental pode ser mantida sem chegar à fadiga.

Em uma amostra com alunos de educação musical, o trabalho de Boon (2020: 423) demonstra uma pontuação mais alta para autorregulação em participantes que relataram praticar instrumento por três horas diárias ou mais. Os resultados deste estudo indicam que estudantes que praticam por mais tempo usam mais estratégias autorregulatórias para planejar, monitorar e avaliar sua aprendizagem. Já no estudo descritivo-correlacional de Araújo (2016a), a dimensão de gerenciamento do tempo apresentou uma média mais baixa que outras dimensões e também se relacionou negativamente com a variável idade, o que sugere que, quanto mais experiente for o músico, de menos tempo de prática ele necessitará para cumprir suas metas (ARAÚJO, 2016a: 12).

Por outro lado, Bonneville-Roussy e Bouffard (2014: 15) apontam para o fato de que não é possível garantir que o tempo de prática declarado por participantes em estudos que trabalhem com o autorrelato seja de fato relativo à quantidade de horas dedicadas à prática deliberada. Isto pode acontecer porque em determinados contextos a amostra pode não saber diferenciar entre o que seria a prática deliberada e a prática informal (como concertos ou ensaios).

Conhecer a quantidade de tempo de que de fato dispomos para a prática diária do instrumento nos auxilia a gerenciar melhor este tempo e também a estabelecer objetivos proximais e passíveis de serem cumpridos, selecionando estratégias que permitam realizar a tarefa em menos tempo. A literatura evidencia a relação entre maior uso de estratégias de aprendizagem autorregulada e maior quantidade de tempo de prática diária (MCPHERSON, 2005: 27. MIKSZA, 2012: 333), porém, para garantir esta relação, é necessário que os alunos conheçam e saibam de que maneira aplicar as estratégias. Também é necessário conhecer como o gerenciamento do tempo de prática passa da regulação externa para a autonomia, modelando estratégias de gerenciamento do tempo que levem a um controle cada vez mais independente à medida que o músico avança no seu aprendizado (MCPHERSON; NIELSEN; RENWICK, 2013: 368).

4.4. Dimensão Comportamento

Gerenciar o próprio comportamento durante a prática musical é uma ação que envolve os processos de automonitoramento e avaliação do desempenho. Ao pensar no primeiro, deve-se incluir para além de estratégias de manutenção da atenção, reflexões sobre seus pontos fortes e dificuldades, o que Hallam (2001: 21) destaca como a habilidade metacognitiva mais importante presente no processo de aprendizagem. Esta habilidade é necessária em todas as fases da aprendizagem musical, pois é a partir dela que podemos selecionar e utilizar corretamente estratégias aplicadas em diferentes situações de estudo ou de performance (MCPHERSON; NIELSEN; RENWICK, 2013: 369).

O autorregistro funciona como estratégia de avaliação do desempenho que auxilia na obtenção de informações pessoais no momento exato em que elas ocorrem (ZIMMERMAN, 1998: 78). Exemplos de estratégias são a elaboração de um diário de estudos e também o uso de gravações de áudio e vídeo, facilitadas atualmente pelo amplo acesso a telefones celulares com estas funções.

Apenas uma participante mencionou registrar suas sessões de prática em um caderno para organizar seu estudo. De acordo com Zimmerman (2000: 20), aprendizes que aplicam estratégias metacognitivas utilizam a auto-observação para realizar um automonitoramento constante de seu desempenho durante a realização da tarefa. Em um estudo de McPherson (2005: 17), os alunos com o hábito de realizar anotações sobre a prática em um diário obtiveram melhores resultados na performance que seus pares que não utilizavam a mesma estratégia. Manter um registro da sessão de prática auxilia a organizar o estudo diário e também a monitorar o funcionamento das estratégias aplicadas a determinada atividade (ANTONINI-PHILLIPE *et al.*, 2020: 9. RITCHIE; WILLIAMON, 2013: 114). Quanto ao recurso de gravações para autoavaliação do desempenho, dois alunos declararam usar esta estratégia. Os demais alunos disseram que raramente utilizam este recurso.

4.5. Dimensão Ambiente

Conforme a análise de ocorrência de palavras (disponível no Apêndice), a palavra “ambiente” foi mencionada 24 vezes no total (10 vezes no Grupo 1, 14 vezes no Grupo 2), mais do que as palavras “técnica” (23 vezes no total), “repertório” (16 vezes) ou “tempo” (15 vezes).

Durante a sessão, os alunos discutiram sobre o papel de fatores externos na prática diária. P8 declarou: “no item: ‘não conseguiria alcançar meus objetivos de estudo se não fossem determinados fatores externos’, eu coloquei que discordo, porque, quando você precisa de algo com urgência, você faz; até no ponto de ônibus eu já estudei”. P7, no entanto, destacou a relevância do fator “ambiente” no estudo: “mas e o seu ambiente? Se você morar em um lugar onde não dá para estudar, você não estuda”.

Dentro desta dimensão, foi sugerido aos alunos de ambos os grupos que descrevessem uma sessão de estudos em um ambiente que eles considerassem ideal e uma sessão em um ambiente não ideal. As discussões acerca do papel do ambiente físico na prática musical são relativamente recentes e estão em grande parte relacionadas à investigação em metacognição e aprendizagem de música (DEMBO; SELI, 2016: 169. MCPHERSON; RENWICK, 2001: 182. MCPHERSON; NIELSEN; RENWICK, 2013: 369. MCPHERSON; ZIMMERMAN, 2011. PAPAGEORGI *et al.*, 2010). O músico autorregulado busca ativamente um local de prática que seja adequado e o estrutura para otimizar sua prática, porque sabe que o ambiente afeta seu aprendizado (ZIMMERMAN, 2000: 19). Estudos recentes sugerem que músicos avançados relatam mais ações de estruturação do ambiente que músicos iniciantes (OSBORNE *et al.*, 2020: 15).

Um dos alunos declarou que nunca havia pensado em organizar o ambiente de estudo antes de iniciar a prática: “Eu tenho pronto o espaço com a estante, a cadeira e o material, mas, quanto a organizar um espaço maior que esse, nunca fiz. O que seria bom por conta da dispersão, e isso eu nunca tinha pensado” (P8). A estruturação do ambiente visando evitar distrações exerce uma influência direta no desenvolvimento instrumental dos músicos (MCPHERSON; RENWICK, 2001: 182). Os processos que devem ser aplicados quando buscamos alcançar um objetivo – neste caso, praticar um instrumento musical – dependem de um ambiente favorável que pode ser pessoalmente estruturado (LEON-GUERRERO, 2008: 94). A estruturação do ambiente envolve equipar o ambiente com itens necessários para a prática e também retirar do local itens que possam atrapalhar o estudo. Isto pode ser ensinado ao aluno desde o início de seu aprendizado pelos professores ao demonstrar a postura adequada ou materiais de estudo e pelos tutores legais ao auxiliar no silêncio no ambiente de prática, como desligar aparelhos eletrônicos que possam causar distração (MCPHERSON; NIELSEN; RENWICK, 2013: 370).

Para os participantes, o local ideal de estudo se divide entre o próprio quarto e as salas individuais da universidade que frequentam. Quanto à estruturação do ambiente, os alunos foram questionados sobre os objetos indispensáveis para uma sessão de estudos ideal. O item mais citado foi cadeira (oito vezes), seguido por estante (sete vezes). Apenas dois alunos mencionaram o metrônomo como objeto indispensável em uma sessão de estudo.

4.6. Dimensão Fatores sociais

Foi questionado aos alunos se, além do auxílio do professor durante as aulas, eles teriam o hábito de recorrer a seus colegas para resolver problemas com o repertório ou obter *feedback* sobre sua performance. Todos os participantes declararam fazer isso, porém não diariamente, como o P8:

Quando eu estou estudando determinada música, eu espero chegar em um ponto apresentável e que precisa da opinião de um outro ouvido para saber onde eu poderia melhorar, ou algum trecho que estou com problema, então eu consulto meus colegas para saber como eles fariam. Ou quando é alguma coisa que algum colega já tocou para ajudar com a digitação.

P10 declara que recorre aos seus colegas “[...] com alguma frequência. Eu estava trabalhando uma peça renascentista e então perguntei para o P8 se ele achava que eu deveria tocar com ou sem capotraste”. Já P4 busca a ajuda de seus pares “[...] se eu tenho alguma coisa mais importante para mostrar, se vou fazer algum *masterclass*, eu peço pra alguém ouvir. Mas só para tocar na aula, não”.

Uma das principais características da aprendizagem autorregulada é seu aspecto social. Ao compartilhar o processo de aquisição de conhecimento com pares ou colegas, temos a oportunidade de receber *feedbacks* que nos auxiliarão a avançar e, “em determinadas instâncias, isto tem um impacto profundo. Até pedir conselho para outro músico em um *ensemble* indica uma prontidão em buscar informação que possa beneficiar sua performance”² (MCPHERSON; ZIMMERMAN, 2011: 157, tradução nossa).

² Original: “[...] in certain instances that their impact might be profound. Even asking advice from another player in the ensemble indicates a readiness to seek information that can benefit one's performance” (MCPHERSON; ZIMMERMAN, 2011: 157).

5. Considerações finais

Nosso trabalho buscou coletar estratégias relacionadas à aprendizagem autorregulada aplicadas ao estudo diário de instrumento musical. O método do grupo focal promoveu a reflexão sobre hábitos de prática por parte dos alunos com o auxílio do questionário usado como instrumento de coleta de dados.

Os dados obtidos nos permitem responder às duas perguntas de pesquisa: “Os graduandos em Música conhecem e aplicam estratégias de aprendizagem em seu estudo diário de instrumento musical?” e “As estratégias eventualmente mencionadas pelos alunos cobrem as seis dimensões psicológicas da aprendizagem autorregulada?”. Com a análise das sessões, pudemos observar que os alunos utilizam estratégias que trabalham processos autorregulatórios presentes nas seis dimensões da aprendizagem autorregulada.

Entretanto, os alunos ainda mostram dificuldade em organizar seus objetivos de maneira hierárquica, controlar o tempo distribuindo o conteúdo ao longo das sessões, recorrer a recursos de autorregistro (como gravações e diários de estudo) e avaliar e modificar estratégias direcionadas à resolução de problemas.

Um estabelecimento de objetivos que não observe as características da tarefa pode levar à escolha de metas temporalmente distantes, o que gera a ilusão de que há muito tempo disponível entre o estabelecimento e o prazo da tarefa (a data de um concerto, por exemplo). Essa ilusão, por sua vez, influencia no gerenciamento do tempo de prática, no qual o aprendiz pode adiar o estudo do repertório ou então alocar muito de seu tempo disponível em apenas uma parte das obras a serem estudadas. Dividir um objetivo em metas menores, para serem cumpridas a cada sessão de prática, melhora a sensação de cumprimento de tarefas e facilita a autoavaliação.

O autorregistro, como já mencionado, auxilia no automonitoramento e na avaliação e adaptação das estratégias usadas. Manter um diário de estudos ajuda a 1) gerenciar o repertório a ser trabalhado, organizando o conteúdo a ser praticado diariamente de acordo com a dificuldade ou com a data de apresentação (organização hierárquica e temporal); 2) a distribuir o tempo de prática pelo repertório e registrar quanto tempo é necessário para cada parte do estudo; 3) a registrar o uso de estratégias e posteriormente identificar se alguma estratégia não foi adequada para o momento; e 4) a avaliar e adaptar o comportamento para as próximas sessões de estudo. Saber avaliar e modificar uma estratégia de acordo com o desafio técnico-instrumental também implica desenvolver a habilidade de autoavaliação e autorreação adaptativa, o que confere autonomia aos alunos no que diz respeito à resolução de problemas e os torna mais responsáveis por suas escolhas e conquistas musicais. Pesquisas futuras podem realizar intervenções usando o diário de prática como estratégia de autorregistro e investigar sua influência no estabelecimento de objetivos, gerenciamento do tempo e na avaliação de estratégias com amostra semelhante.

Dentro da limitação do número de participantes e de seu contexto similar, estes resultados não podem ser generalizados. Pesquisas futuras podem realizar estudos qualitativos com amostras provenientes de diferentes contextos de educação musical.

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4.3. Artigo 3: #100daysofpractice: Selection and adaptation of self-regulated learning strategies in an online music performance challenge

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Abstract

This reflective case study sought to identify self-regulation processes associated with daily music practice, focusing on the researcher-performer perspective. The first author of this article is also the study participant: a classical guitarist and graduate student at a South-American University who took part in the Instagram challenge #100daysofpractice, which involves recording and posting a video of one's daily musical practice for 100 uninterrupted days. Using analytic autoethnography as a self-reflective descriptive tool, the research explored self-regulated learning strategies and the impact of social media on music practice. By highlighting the processes and strategies employed during the challenge according to the six psychological dimensions of Self-Regulated Learning, the results suggest that these processes and strategies can be associated with more than one dimension.

Keywords

music practice, self-regulation, autoethnography, social media, learning strategies

On the first day of 2019, the study participant—a classical guitarist—joined a new music trend: the #100daysofpractice challenge, which required sharing, on Instagram, a video of one's daily music practice for 100 uninterrupted days. Such challenge was undertaken as an opportunity to document, analyze, and reflect upon the guitarist's own practice, establishing specific repertoire choices and practice goals in advance, to understand how this new routine would relate to the Self-Regulated Learning (SRL) construct.

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Self-regulation can be defined as “self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals” (Zimmerman, 2000, p. 14). Zimmerman (1990, 1998, 2000) describes self-regulation as a cyclical and reciprocal process within a music learning framework that encompasses three phases: forethought, performance, and self-reflection (McPherson & Zimmerman, 2011). Zimmerman and Risemberg (1997) organized the key processes involved in self-regulation as a conceptual model comprising six psychological dimensions of Self-Regulated Learning: Motive, Method, Time, Behavior, Physical Environment, and Social Factors. When reflecting on music learning according to this multi-dimensional model, McPherson and Zimmerman (2011) suggested strategies that can be employed and adapted to optimize music teaching and learning.

Adapting music learning to this construct can contribute to a more efficient knowledge construction by promoting an understanding of the interaction between social, cognitive, affective, and motivational processes as the basis of music learning (McPherson & Zimmerman, 2011; Mornell et al., 2020). When students become aware of their strengths and weaknesses, they can set proximal goals and monitor their actions to successfully achieve those goals. Moreover, over the years, students acquire additional knowledge and technical and musical skills that can help them achieve results while practicing fewer hours per day (Araújo, 2016; Pike, 2017).

Psychological dimensions of self-regulated learning

Self-regulation encompasses numerous processes that students activate to accomplish a task (Zimmerman, 1998). The six questions underlying the way we acquire knowledge (Why? How? When? What? Where? and With whom?) can also be related to the six psychological dimensions of self-regulated learning (Motive, Method, Time, Behavior, Physical Environment, Social Factors), and each of these dimensions in turn comprises self-regulation processes (McPherson et al., 2013; McPherson & Zimmerman, 2011; Zimmerman & Risemberg, 1997) (see Table 1). Such an approach has been investigated by studies involving beginners and/or intermediate music students (Madeira et al., 2018; McPherson & Renwick, 2001; Miksza, 2012), and advanced and/or college music students (Dos Santos & Gerling, 2011; Ersozlu & Miksza, 2015).

According to Zimmerman and Risemberg (1997), and McPherson and Zimmerman (2011), these processes are interdependent and occur throughout the learning process (Table 1).

Table 1. Dimensions of Self-Regulated Learning.

Dimension	Question	Self-regulation processes
Motive	Why?	Goal setting, goal orientation, strategic planning
Method	How?	Use, evaluation, adaptation of Learning Strategies
Time	When?	Self-planning and management of practice time
Behavior	What?	Self-monitoring and self-evaluation of outcomes
Environment	Where?	Self-structuring of the learning environment
Social	With whom?	Seeking help from peers, teachers, family, or other resources

Source. Adapted from McPherson and Zimmerman (2011).

The question “Why?” addresses the “Motive” dimension. Deciding when to practice and sustaining that intention while striving to become a professional musician requires the understanding that the primary outcome of practice is performance improvement (Ericsson et al., 1993). This includes the goal-setting process, which in SRL relates to achievable but challenging goals, self-set according to the musician’s self-efficacy beliefs.

“How?” refers to the “Method” dimension and helps one understand how to plan a practice routine, and choose and evaluate learning strategies, that is, “actions taken by the learner with the objective of completing a task or obtaining information” (Dembo & Seli, 2016, p. 280). In the context of SRL, strategies also involve agency, purpose, and self-observation (Zimmerman & Martinez-Pons, 1986), because creating, selecting, and employing a strategy implicates several processes such as “cognition, metacognition, motivation, affection, and behavior” (Weinstein et al., 2011, p. 45). This process may engage a triadic reciprocity, that is, the personal, behavioral, and environmental influences that act on individuals during the learning process (Zimmerman, 1990). Learning strategies should be planned considering those influences, thus making them individually adaptable, as no strategy is completely appropriate for everyone, not at all times (Nielsen, 2001, 2015; Zimmerman, 2000). Consequently, self-regulated individuals adjust their goals and strategies at the end of a learning cycle, when they perform self-evaluation or receive external feedback (Zimmerman, 2000, 2006).

The “Time” dimension is associated with the question “When?”. Time management is a self-regulation process that can affect learning strategies (Byo & Cassidy, 2008; McPherson, 2005; Miksza, 2012; Mornell et al., 2020), performance (Araújo, 2016; Bonneville-Roussy & Bouffard, 2014), and SRL (Boon, 2020). Musicians who spend more time practicing also show more frequent use of learning strategies (Boon, 2020; McPherson, 2005; Miksza, 2012).

“What?” concerns the Behavior dimension and the self-monitoring process (Miksza et al., 2018). Having the ability to control and monitor behavior during practice is essential if one wants to learn a new repertoire (McPherson & Zimmerman, 2011), and involves the habit of reflecting on personal characteristics, strengths, and difficulties, on how long it takes to learn a piece, and realizing what is needed to improve while practicing (Colombo & Antonietti, 2017; Nielsen, 2001). Hallam (2001) considers this action the most important metacognitive skill involved in the learning process. McPherson and Renwick (2001) argue that, without knowing how to control and monitor one’s practice, some strategies may not be fully effective. With this information, musicians are able to understand how to maintain focus.

The question “Where?” addresses a dimension that affects practice quality but is not always possible to control: the physical environment. Structuring the physical space where practice occurs can contribute to better performance (Osborne et al., 2021). Noisy environments or with visual distractions, or without the necessary resources can render practice goals hard to achieve (Zimmerman, 2006). Self-regulated musicians are usually aware of the influence this dimension has on their practice and the factors they consider necessary in a practice environment (McPherson & Zimmerman, 2011). With this information, they can select and structure this environment whenever possible, removing distractions and optimizing their learning (Leon-Guerrero, 2008; McPherson et al., 2013; McPherson & Zimmerman, 2011; Zimmerman & Risemberg, 1997).

“Social Factors,” the sixth and final dimension, refers to the question “With whom?” As learners become more experienced, they ask for help or feedback from people other than their instrument teacher, with high-achieving students relying more on social sources than low-achieving students (Zimmerman & Martinez-Pons, 1986). When musicians, as learners, are aware of their processes and characteristics, they tend to choose who to ask for help according to the kind of support they need (Zimmerman & Risemberg, 1997). Besides, sharing music learning ideas with peers can be a powerful tool (Dos Santos & Gerling, 2011; McPherson & Zimmerman, 2011).

Self-reflective music practice

Seeking to reflect on the personal influences that affect their creative or teaching experiences, musicians/researchers have published several studies on self-reflective practices (Bartleet &

Ellis, 2010; Benetti, 2017; López-Íñiguez, 2019), including research on SRL (López-Íñiguez & McPherson, 2020; Pike, 2017).

In self-reflective research, a range of theoretical, methodological, and bibliographic resources can be used to organize and to analyze experiences, such as autoethnography—a qualitative research method that requires the researcher's analysis and discussion of lived experiences as an active member of a given cultural environment (Chang, 2008; Ellis et al., 2011). Autoethnography is not restricted to storytelling or autobiography, as personal data are analyzed and related to external data to understand social events and broader cultural settings (Adams et al., 2021; Chang, 2008). One of its advantages is the possibility to obtain qualitative data by introspection on personal processes and their execution (Anderson, 2006; Chang, 2008). This qualitative method has been employed in self-reflective music research, performance studies (Carless & Douglas, 2021; Castro, 2016; López-Íñiguez & McPherson, 2020), composition (Hollingworth, 2019), and music education (Gouzouasis & Ihnatovych, 2016; Kladder, 2021; López-Íñiguez & Courts, 2020; Waters, 2021; Wiley, 2019). Autoethnography can be applied in an evocative manner, as a reflection based on emotional recalls about lived experiences (Bartleet & Ellis, 2010; Ellis & Bochner, 2000), in a writing format closer to a descriptive literary approach (Anderson, 2006), or, as in this study, in an analytic manner. Analytic autoethnography seeks to develop an academic discussion about particular social phenomena by analyzing the researcher's experience (Anderson, 2006; Chang, 2008).

This research used autoethnography as a methodological tool, organizing and analyzing its results according to the six psychological dimensions of SRL and the self-regulation processes involved therein (McPherson & Zimmerman, 2011; Zimmerman & Risemberg, 1997), adding a personal reflection and analysis about the challenge.

Thus, this study proposed to

- (a) Identify and discuss, using autoethnography, the processes and strategies applied within the framework of the six psychological dimensions of Self-Regulated Learning;
- (b) Apply a social-cognitive approach to practice and performance, based on the use of social media; and
- (c) Provide a self-reflection on the changes in the guitarist's practice routine while participating in a study over a long period.

Method

Sample

The study sample consists of a 29-year-old classical guitarist, who is also the first author of this article, with approximately 12 years of instrumental practice. She holds a bachelor's degree in guitar and music education, a master's degree in Music Education, and is now a PhD candidate, researching self-regulation and music performance.

This study is part of a larger research on SRL that has been fully approved by the University of Campinas Social Sciences Research Ethics Committee (CAAE 09319219.8.0000.8142).

Data collection and analysis

The *#100daysofpractice* challenge, launched by North-American violinist Hilary Hahn in 2017 (Westberg, 2017), requires recording a 1-minute video of one's daily music practice for 100 uninterrupted days and posting these videos on Instagram.

Created in October 2010 and currently amassing over 1 billion users, Instagram is a digital social network that “aggregates different services, in an economy developed and driven by data and through the algorithmic organization of [users’] experience” (Lemos & Pastor, 2020, p. 137). Many activities are created for the network by its users, such as the “#100days” challenges, in which users challenge each other to practice for 100 uninterrupted days and share it on Instagram. The #100daysofpractice includes 670,462 publications as of September 10, 2021.

From January 1, 2019, to April 11, 2019, the participant recorded herself (using an iPhone SE) and published one video per day on her personal Instagram account.¹ The repertoire included works such as the Prelude from Bach’s *Prelude, Fugue, and Allegro* BWV 998, which she learned for this project, 43 different pieces for classical guitar, 12 arrangements or songs from the popular repertoire, and 4 technical exercises² (full list in Appendix A in Supplementary Materials online). She practiced Prelude BWV 998 and published those sessions on Days 1, 2, 32, 63, 70, 87, and 100.

Qualitative data were recorded using the following tools:

1. Practice diary: Self-report of practice planning, daily repertoire, time management, and cognitive and metacognitive strategies. These annotations were analyzed and coded, relating the chosen strategies to the six dimensions of SRL and self-regulation processes.
2. Instagram posts: Each daily post contained one or more videos and a brief explanation or reflection on the repertoire. User comments were analyzed and coded according to the six dimensions of SRL.
3. Self-reflection notes: After completing the challenge, the participant watched each of the 100 posts, recalled those learning activities and the related user comments, and recorded self-reflection notes about the processes that helped her accomplish the challenge and learn the new piece.

This research is based on the five key features of analytic autoethnography identified by Anderson (2006, p. 378), namely, (a) Complete member researcher status, that is, the researcher must be fully inserted in the community under study: the participant is a complete member of both the classical guitar community and the Instagram community; (b) Analytic reflexivity: self-reflection is a key feature of the SRL construct (Zimmerman, 1990), and both data and results were analyzed in a self-reflective manner; (c) Narrative visibility of the researcher’s self: the first author is a visible actor in the study, because the dialogue between results and theory is mediated by her experiences; (d) Dialogue with data beyond the self: besides the participant’s self-reflections on the published practice videos and the practice diary, the data analyzed includes comments made by other Instagram users; (e) Commitment to theoretical analysis: results are discussed based on the Social Cognitive perspective of Self-Regulated Learning.

Results

We organized and analyzed the data related to the strategies adopted during the challenge according to the six dimensions of SRL (McPherson & Zimmerman, 2011; Zimmerman & Risemberg, 1997).

Motive

In this Instagram challenge, the Motive dimension comprised the willingness and decision to participate—factors that refer to the self-regulation process associated with beliefs of being able

to accomplish a task, within the Self-efficacy construct (Bandura, 1997), and self-setting short-, medium-, and long-term practice and performance goals.

On the first page of her self-reflection notes, the participant wrote that her personal goal was to “re-approach daily guitar practice and learn the necessary repertoire,” pointing out that she had yet to participate in the challenge because: “I didn’t feel able, I was (and still am) afraid that I wouldn’t be able to finish the challenge, and that would be embarrassing for me.”

The long-term goals set were to learn a new piece and to complete the challenge, practicing and recording over the 100 days, but the first weeks of the challenge showed a lack of medium- and short-term goal setting; a large amount of time was spent deciding what to record each day.

So, starting on the 15th day, the participant improved the practice plans, distributing the practice and recording longer pieces over several days. She also created a few “series” within the challenge. Information in the Instagram posts about these series included data on the composer, the selected work, and its technical and musical characteristics. The actions of organizing the repertoire for the videos and setting medium- and short-term practice goals were carried out each day, before and during the study and recording sessions, and, after those sessions, by evaluating the adopted strategies and planning the following days, implementing a routine of weekly organization of the practice content.

Method

The challenge involved two types of tasks: record and publish a daily video and learn a new piece. To record a 1-minute video, the participant had to select an excerpt from a piece that she believed Instagram users would be interested in, or that she was able to practice, solve technical and musical issues, and play skillfully while recording the video.

To learn the new piece, the participant followed a previously fixed routine: First, she analyzed its harmony and form, and then played it through to identify the sections that might present technical difficulties. Next, she divided the piece into shorter practice sections and chose the fingerings. Finally, she used the metronome while studying to achieve an adequate tempo.

In the following days, this strategy required some adaptations. On the 30th day, for example, the participant reflected on the 369 incomplete videos in the “deleted” folder of the phone’s camera.³ As she wrote about the several recording attempts required to get a satisfactory video, the participant realized that she could adapt her strategies by practicing the pieces to be recorded in more detail before attempting to record.

Time

Strategic planning requires proper time management. Despite the reduced time available for the participant’s practice, the years of performance experience and self-regulated practice helped her to achieve the goals with less practice time.

As the participant was committed to posting videos daily, she had to plan her time management every day, especially on busy days. As recorded on the 20th day: “I realize that there were many moments when I would find excellent reasons not to play, but with some organization, I could have done it.”⁴

For the “#100days” challenge, therefore, she needed to organize her time to practice every day and, during this daily practice, set aside adequate time to record the video. Practicing during the morning and weekly repertoire planning were goal-setting strategies planned before the practice sessions that helped her manage time. Another strategy adopted was to start the session by practicing the repertoire to be recorded, to avoid fatigue. Alternating between recording

longer excerpts or complete pieces and recording just 1 min of music also helped to manage busy days.

The main outcome associated with this dimension was learning how to plan shorter practice sessions and proceed with the challenge on busy days. After the study, this helped the participant to manage her practice in shorter sessions.

Behavior

Self-recording and self-monitoring are the main processes associated with the Behavior dimension. As the main task of the challenge was to record and to share videos, this dimension proved to be essential. Before the challenge, recording daily practice on video while learning a new repertoire was a strategy employed occasionally, never daily.

To complete the challenge, the participant had to choose a suitable repertoire for the recording, to identify the time of day she was most predisposed to study the guitar, the available time for this activity each day, and the resources necessary to stay focused during the recording.

Daily use of video feedback helped the participant monitor the process of learning the new repertoire, as on Days 1, 2, 32, 70, 87, and 100, when Bach's Prelude BWV 998 was recorded. By recording daily practice, she was also able to gather information about her practice habits and strategies from the recorded content, and to evaluate and to adapt ineffective strategies.

The practice diary, another self-recording strategy, also affected the study. Despite the author's familiarity with this tool, which she used to record information about cognitive strategies used to learn music (e.g., use of metronome, practice sections, dynamics ideas), she was not used to recording metacognitive monitoring information, such as self-reflections, feelings, behaviors, or physical health. Her practice diary and Instagram posts during the #100days challenge included this latter information.

Both strategies were also useful for managing goal achievement, affecting the Motive dimension. After the study, the participant continued to apply these strategies to monitor and to control her behavior during practice.

Physical environment

This dimension was highly relevant at the beginning of the challenge due to personal factors (moving to a new house). On the sixth day, the participant wrote in her diary,

Today it didn't work. Since I'm moving, I'm playing sitting on a mattress, with my cell phone propped up on a shelf (it has already fallen on the floor several times); I can't find my nail file, and I urgently need to change the strings. Not to mention the fatigue and stress of moving. And so, there was one attempt at a video and two failed.⁵

Setting a suitable environment was an essential part of the activity, as the participant needed a suitable space to record the videos. After finding a position with adequate light and no distracting objects, she structured the environment to have everything she needed to practice and to record, namely, chair, music stand, sheet music, ergonomic guitar support, pencil, metronome, practice diary, and cell phone (to record the videos).

Social factors

The main feature of social networks like Instagram is interactivity between users (Waldron, 2018). The content created and published engages users, encouraging actions such as sharing,

writing comments, sending direct messages, or expressing positive reactions (via tools like the “like” button) (Lievrouw, 2011). Sharing her music practice with this social media community changed how she organized her practice, especially because she could not miss a day of posting.

Sharing one’s practice process, and displaying errors and technical difficulties, implies public exposure, and the participant feared her reaction to negative feedback from platform users. As recorded on her self-reflection notes, “It is not easy to expose myself on social media, as I never share personal thoughts and feelings online.”

This task generated insecurity, but it was also this vulnerability that, through a sense of belonging and desire to help, knowing that most people sometimes get frustrated during daily practice, connected the participant with those who were following this process. On the 63th day, she wrote about her struggle with an excerpt from Bach’s *Allegro* (BWV 998), to which a user replied: “I play some of the basses an octave lower. But for me, the following excerpt is harder to play.” This example, among several other comments, highlights the engagement of other users in the process.

The feedback from people following the participant’s 100 days was positive and encouraging, generating relevant discussions about guitar practice. On the 91st day, for example, one user stated, “It’s really great to see how this piece has developed, compared with the previous videos!”⁶

One strategy adopted to engage platform users was to include some information about the recorded repertoire, such as facts about the composer, the period of the piece, its technical demands, and the difficulties encountered when studying a specific piece.

On the 22nd day, a peer guitarist wrote to the author offering materials about the work posted that day - Fernando Sor’s *Introduction and Variations on “Malbrough,”* op. 28 (1827). Following this interaction, she received materials that she would not otherwise have accessed. On the 91st day, some colleagues commented that they felt encouraged to practice after watching her daily videos, and some even started the challenge. One user commented, “You gave me an urge to practice every day that I haven’t felt in months.”

The posts received an average of 200 views per day, with the exception of a few videos that reached around 500 views, and the last video, with 663 views. The video posted on the 100th day received the most comments (25) and “likes” (165).⁷

Discussion

This self-reflective case study sought to understand how the six dimensions of self-regulated learning and cognitive and metacognitive processes are applied in the daily practice of a graduate classical guitarist.

Participation in an Internet challenge acted as a source of motivation for the participant’s musical practice, initially externally regulated by the fear of failure. However, the task of recording the videos was gradually integrated into daily practice. What prompted her to start the challenge were the benefits derived from recording and, later, watching the videos of her daily study, and the feedback generated by sharing these videos. Different sources of motivation positively affected the daily practice, suggesting that as a self-regulated learner she was able to identify these sources and use them to organize her practice (McPherson & Zimmerman, 2011).

This led the author to plan her recording repertoire more specifically, setting daily recording goals in addition to daily practice goals. Organizing the goals hierarchically while observing temporal proximity helped her feel like she was mastering the challenge day by day and regulating her distal goals, as indicated by other studies (Araújo, 2016; Nielsen, 2001).

Both Kim (2010) and Antonini-Philippe et al. (2020) suggest that the practice diary could be an engaging tool in SRL interventions, encouraging a self-reflective approach to music practice. In the present study, the practice diary and daily Instagram posts served as a self-monitoring tool for daily recording and practice, with information ranging from strictly cognitive data (pre-challenge) to metacognitive data (post-challenge). In an experiment conducted with music students, McPherson (2005) suggested that students who took notes during practice performed better than their peers who did not use the same strategy.

The participant used video feedback as a method to self-evaluate the musical aspects of her performance and choice of strategies, as in the study carried out by López-Íñiguez and McPherson (2020). An intervention by Boucher et al. (2020) suggests that self-regulated musicians who use video feedback to evaluate their performance tend to practice slowly and play shorter segments when they begin learning a new repertoire. In the present study, the video feedback strategy—the basis of the challenge—also helped the participant to monitor the efficacy of the applied strategies and, eventually, adapt them.

These processes also included strategies for self-managing practice and recording time. Adapting the available practice time to the time needed to perform other daily tasks helped the participant to better manage practice and recording periods, as well as to select and apply strategies that helped her complete the challenge in less time every day. This corroborates other studies suggesting that the internalization of SRL processes affects the practice time of more experienced musicians, and so they tend to spend less time practicing, focusing their efforts on deliberate practice, and on planning, monitoring, and adapting their learning processes (Araújo, 2016; Pike, 2017).

Structuring the physical environment every day before starting practice also helped her to stay focused, as she did not have to stop and rearrange the recording setup. Avoiding distractions and dispersion by organizing the practice environment directly influenced the technical and instrumental development of this process, as indicated by McPherson and Renwick (2001) and McPherson and Zimmerman (2011)—a choice that self-regulated learners consciously make (Zimmerman, 2000, 2006).

During the first month (until the 30th day), the participant received several incentives from those following the challenge, and this played a significant role in keeping her motivated to complete the challenge. Some users commented that they were also feeling motivated by the videos: “I started guitar lessons a few months ago (. . .) then I opened Instagram and your video popped up for me. Wow, very nice! Congratulations, you made me feel very motivated.”

The Social Factors dimension is noteworthy in that, here, the social resources were distinct from a teacher or peer involvement, and thus expanded to a global level in which any Instagram user could access the content and the participant’s practice process. Usually, videos posted by musicians are often carefully recorded and selected, demonstrating their best performance moments. These videos, however, do not show the efforts to achieve a satisfactory version, the frustration with mistakes, and the perceived demands to present a “perfect” recording. Hence, the challenge requires participants to post the kind of content that a professional musician would generally discard after a regular recording session. This exposure, although intimidating at first, allowed the participant to consider her practice difficulties within a broader context, and to realize that she was not alone in most of these situations, as many colleagues also go through them and experience difficulties. As López-Íñiguez and McPherson (2020) suggest, musicians must learn to control their self-reactions, to use audience feedback positively, distinguishing constructive criticism from that which does not contribute to practice and to performance improvement. Social media presents a specific perspective on these issues: recording and posting photos and videos provides additional immediacy, as the content can be perceived as

less manipulated, intimate, and instantaneous, fostering a sense of closeness and identification with other users.

Exchange with national and international peers allowed the participant to access information sources and different perspectives on what she was playing. This fact is associated with the characteristics of self-regulated learners who actively seek help and know who or what source is best to help them (McPherson & Zimmerman, 2011).

In this study, some self-regulatory processes were associated with more than one dimension. Motivation, a feature of the Motive dimension that initially addressed exclusively the completion of the challenge, was also supported by positive feedback from other users, thus involving the Social Factors dimension.

By adapting the repertoire to the interest of Instagram users (planning a few series of pieces, alternating between recent and historical repertoire), the participant activated the processes of goal-setting, time management, and self-reaction, which involve the Motive, Time, and Social Factors dimensions.

The self-monitoring process activated by video feedback and the use of a practice diary can be associated with both the Method and Behavior dimensions because self-monitoring is a metacognitive action that can assist in controlling behavior via learning strategies present in the Method dimension. Dos Santos and Gerling (2011, p. 433) also observed this interaction, pointing out the need to develop both the Method (which they call “ways of doing”) and Behavior (“ways of adapting, adjusting, or modifying”) dimensions to achieve an effective practice. Miksza’s (2012) SRL measure statistically suggested that the Method and Behavior dimensions could be combined because the former comprises actions (or strategies) carried out during practice, whereas the latter refers to reflection on those actions.

Results suggest that the action of self-structuring the environment to avoid distractions affected the process of maintaining focus. These processes were observed in both the Behavior and the Environment dimensions.

Limitations and suggestions

Sharing practice processes on social media requires creating interesting content for users, thus ensuring meaningful feedback. Nevertheless, daily practice often involves studying repeatedly the same difficult excerpts, slowly or using the metronome, and this is possibly not interesting to watch daily.

One of the limitations of this study thus is that, given the impossibility of introducing a new repertoire, the participant had to alternate practice content with sight-reading exercises, guitar arrangements, and melodic studies from the guitar literature.

Thus, the content includes both formal and informal practice sessions. On some days, given the impossibility of recording the formal practice, posts included live performances (Days 12 and 76), rehearsals (Day 10), studio recording sessions (Days 50 and 67), and the first recording of a new piece (Day 83).

These options, which avoid mere technical aspects of daily practice, could influence the Social Factors dimension and generate greater peer feedback. Future research should therefore focus on the social factors involved in sharing the actual processes of daily practice using the Instagram live tool or other live social media resources.

Peer interaction via feedback in this study was limited to Instagram only, as only registered users can comment on posts of the platform, a factor that might have biased the Social Factors dimension to some extent.

This research was designed as a self-reflective and autoethnographic report. Thus, although the reflection on the processes and strategies applied may contribute to students and teachers who aim to optimize their practice by using resources such as social media, the results of similar experiences may differ considerably. A study with a significant sample of musicians who completed the challenge may be relevant for generalization purposes.

Conclusion

We observed that the Self-Regulation processes implemented in this research often concurrently affected more than one of the six dimensions as well as the strategies applied. This suggests that (a) some dimensions may be interdependent; (b) learning strategies should be planned and evaluated considering this interdependence, and (c) evaluating and adapting a strategy from the perspective of a single dimension may not be the most efficient option.

Thus, this challenge could serve both as a reinforcement of personal commitment to record daily practice and to enhance the music learning process by engaging with a connected community. As daily practice is an individual exercise, sharing study processes on social media can promote shared learning and music practice experiences. As the promoter of the initiative, North-American violinist Hilary Hahn mentioned in an interview that “doing the project kind of created the bond for me, where I realized that everyone is thinking about the same things and working toward these things and people do feel isolated at times” (Westberg, 2017).

As self-reflection is a critical process in SRL, an autoethnographic approach could present new perspectives on SRL and promote metacognitive behavior. In this study, besides completing the challenge, the participant had to reflect on her behavior, feelings, and strategies used to accomplish this task. As she was also the researcher, she had to analyze her reflections during this long period, shedding light on information about practice processes that might not be evident in an observational design.

With this self-reflective article, we hope to encourage other musicians to monitor and record their daily practice and to share the processes involved while learning and practicing, as new processes that require metacognitive thinking can improve our practice and the achievement of our goals. Music teachers can also motivate their students to record and share videos of their daily practice, to receive a wider range of feedback that can positively impact the learning experience and simultaneously allow them to analyze and to evaluate the learning process, promoting varied approaches to self-reflective learning environments.

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Supplemental material

Supplemental material for this article is available online.

Notes

1. Publications, including user comments, are available at <http://instagram.com/camilladovilo>. Content also available in the institutional repository at <https://redu.unicamp.br/dataset.xhtml?persistentId=doi:10.25824/redu/EHHEKI>.
2. Given that these are long pieces, she recorded different excerpts over several days during the challenge. See details in the Appendix A in Supplementary Materials online.
3. Original post available at: <https://www.instagram.com/p/BtRyKzYHLxd/>
4. Original post available at: <https://www.instagram.com/p/Bs4CusAHHu1/>
5. Original post available at: https://www.instagram.com/p/BsT2_elnn2f/
6. Original post available at: <https://www.instagram.com/p/Bvu3k4cghQv/>
7. Detailed information about the views, comments, and likes of the posts is available in Appendix B in Supplementary Materials online.

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4.4. Artigo 4:

Attitudes in music practice: a survey exploring the Self-Regulated Learning processes of advanced Brazilian and Portuguese musicians

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Attitudes in music practice: a survey exploring the self-regulated learning processes of advanced Brazilian and Portuguese musicians

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Introduction: This study aimed to investigate the Self-Regulated Learning behaviors of advanced Brazilian and Portuguese musicians and how these processes vary in terms of gender, nationality, musical instrument, quantity of practice, expertise, and professional experience.

Methods: 300 participants fully completed the 22-item questionnaire “Attitudes in music practice”. The sample comprised of 54.3% males, 44.0% females, and 1% non-binary; 0.7% did not respond. 68.0% ($n = 204$) were Brazilian, and 32.0% ($n = 96$) were Portuguese. The mean age was 32.70 years old ($SD = 11.261$), the mode was 22 years old, with a range of 18 to 66 years. Data analysis procedure included exploratory factor analysis, internal consistency, independent sample t test, analysis of variance (ANOVA), and chi-square tests.

Results: Exploratory Factor Analysis generated three factors: Practice Organization, Personal Resources, and External Resources. The results report there are no differences in SRL scores in terms of gender, nationality, and musical instrument. However, One-way ANOVA test results convey differences in SRL scores and the quantity of practice and expertise with those musicians who reported practicing for longer periods scoring more highly than participants who declared spending less time on daily practice.

Discussion: The results for the expertise variables suggest that more experienced and older musicians scored higher in Personal Resources and lower in External Resources indicating that, as musicians gain in experience, their metacognitive processes become more evident than the social factors of their performance.

KEYWORDS

self-regulated learning, music practice, survey, advanced musicians, exploratory factor analysis

1 Introduction

Musicians who achieve high levels of proficiency invest a significant amount of their time practicing their instrument and continue to train in order to maintain excellent performance levels. However, the quality of this practice is of utmost importance as the outcomes do not solely depend on the quantity of hours invested (Ericsson et al., 1993; Williamon and Valentine, 2000; Byo and Cassidy, 2008; Bonneville-Roussy and Bouffard, 2015). Research into musical

practice has focused on investigating the factors rendering practice efficiency beyond quantity of practice, discussing processes such as how to set personal goals, sustain focus, and persevere in error correction as well as how best to address challenging musical sections (Ericsson et al., 1993; Araújo, 2016; How et al., 2022).

A comprehensive review of music practice research from 1928 to 2020, conducted by How et al. (2022), demonstrates the influence of psychological methodologies on this domain. Their analysis reveals that popular topics and extensively cited articles revolve around psychological constructs such as deliberate practice, motivation, and self-regulation. The role of self-regulation, defined by Zimmerman (2000), p. 14 as “self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals” in learning processes, may be temporally distributed as described in Zimmerman’s cyclical model (Zimmerman, 2000; Zimmerman and Campillo, 2003). Zimmerman’s model comprises three phases: Forethought, Performance/Volitional Control, and Reflection. In the Forethought phase, learners employ various actions and strategies for task analysis and goal setting. This is motivated by their self-efficacy beliefs, outcome expectations, and perceived value of the task. Self-control and self-observation are essential during the Performance/Volitional Control phase for the proper employment of learning strategies. This includes focus maintenance, self-monitoring, and other metacognitive subprocesses. During the third phase, Self-Reflection, the learner conducts self-evaluation and manages self-reactions. These self-reflective conclusions feed into the next learning cycle, influencing the subsequent Forethought phase of the model (Zimmerman, 2000).

The model was adapted to music learning and performance by McPherson and Zimmerman (2002, 2011) and extensively applied to music research in order to investigate metacognitive aspects of music practice and performance (How et al., 2022). Even advanced musicians can benefit from SRL strategies and improve their musical performance and daily practice (Clark and Williamon, 2011; Pike, 2017; López-Íñiguez and McPherson, 2020).

From a cognitive point of view, the most conventional definition of a musician is someone who has the ability to play an instrument or sing, this ability being acquired through years of practice (Hallam, 2010; Zhang et al., 2020). Thus, most studies consider the amount of deliberate practice, which is formal and supervised by a teacher, as a primary factor in the development of musical expertise. In Western music, this type of practice occurs mainly in conservatories and higher education music institutions.

According to previous literature (Ericsson et al., 1993), advanced musicians were defined as those who had at least 10 years of experience with their main instrument. However, as research in musical practice has increased, musicians enrolled in higher education institutions, such as universities, professional conservatories and other tertiary institutions, who are preparing to become professional musicians or already working professionally, have been also designated as advanced musicians (Papageorgi et al., 2010; Araújo, 2016). In this study, we will use “advanced musicians” to refer to these individuals. Advanced musicians exhibit practice skills similar to deliberate practice, engage in a focused manner during practice, and have received adequate training to organize their practice based on the technical, theoretical and interpretative aspects of music (Williamon and Valentine, 2000; Miksza, 2015). These musicians have also been described as *elite musicians* (De Bruin, 2019; Kegelaers and Oudejans, 2020; Mornell et al., 2020), *expert musicians* (De Bruin, 2017; Fasano et al., 2020), *undergraduate musicians* (Clark and Williamon, 2011; Zhukov, 2012;

McPherson et al., 2019), *professional musicians* (Dos Santos and Gerling, 2011; Pike, 2017), and *college musicians* (Kim, 2010; Boucher et al., 2020, 2021).

Regarding the development of musical expertise, it is possible to consider it in relationship with the training period in higher music education. Before entering the higher education course, there is a specific test to assess the minimum musical skills required to enter the course, skills usually developed through years of practice in music schools and conservatories prior to university. Placement in the professional job market usually occurs after completing an undergraduate course in musical performance (Creech et al., 2008).

Developing musical skills is a comprehensive journey involving a combination of theoretical and practical experiences, with relevant aspects such as a first solid foundation in the theoretical and practical foundations of music, including the study of music theory, sheet music reading, counterpoint, harmony, musical analysis, history of music and constant auditory training through music perception classes. During this time, students also have constant instrument lessons and opportunities to play solo and in an ensemble, a period that culminates with the first public audition. Up to this point, we consider naming the category as students, being those who have not yet performed the mid-course recital. The mid-course recital already has a public character and is normally the first public performance of repertoire prepared under the guidance of a specialist teacher.

After the mid-course recital, musicians can be considered pre-professionals because they are already in the final year of their undergraduate course, in preparation for the final recital. Following the rationale, individuals who finished their undergraduate music course were considered professionals, as they were, by definition, ready for the job market. This categorization is justified as a way of expanding the current notion of musical expertise development, and it is the one we used in the present study.

The literature has extensively studied the quantitative measuring of SRL behaviors in advanced musicians, especially in the last decade (Ritchie and Williamon, 2013; Bonneville-Roussy and Bouffard, 2015; Miksza and Tan, 2015; Araújo, 2016; Ersozlu et al., 2017; Hatfield et al., 2017; Volioti and Williamon, 2017; Topoğlu and Topoğlu, 2018; Boon, 2020; Peistaraitė and Clark, 2020; Nusseck and Spahn, 2021; Liu, 2023a). A recent review on musical practice by How et al. (2022) reports that 66.2% of the retrieved articles applied quantitative methods, with questionnaires emerging as the most common instrument type (47.4%). Initially, descriptive-correlational studies in this field employed instruments developed for general education or adaptations of these instruments, such as the Pintrich and de Groot Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich and De Groot, 1990), applied by McPherson and McCormick (1999, 2000), and Nielsen (2004, 2012) or the Self-Regulated Learning Interview Schedule (Zimmerman and Martinez-Pons, 1986), used by Clark and Williamon (2011) and Ritchie and Williamon (2013). However, music practice also involves specific behaviors and task-related demands, which prompted the need to develop a measurement instrument tailored to SRL processes related to musical learning (Miksza, 2012; Araújo, 2016).

The Self-Regulated Practice Behavior scale was designed and validated ($\alpha = 0.76$ to 0.90) for measuring the self-regulatory behaviors of beginner and intermediate musicians (Miksza, 2012). This scale has since been translated and validated in Turkish (Ersozlu and Miksza, 2015; $\alpha = 0.62$ to 0.90), Portuguese (Madeira et al., 2018; $\alpha = 0.71$ to 0.84), and Chinese (Zhang et al., 2023; $\alpha = 0.77$ to 0.86). Subsequently,

Araújo (2016) designed the “Attitudes and Sensations in Music Practice” questionnaire for advanced musicians to assess SRL behaviors and Flow sensations in advanced musicians, which has since been validated and applied in both Portuguese and English ($\alpha = 0.86$). However, considering the best practices based on recent evidence (Costello and Osborne, 2005; Worthington and Whittaker, 2006; Howard, 2016; Rogers, 2022), we deem it necessary to replicate Araújo's study, updating the validation procedures of the “Attitudes in Music Practice” scale (Araújo, 2016) as regards Exploratory Factorial Analysis, before conducting Confirmatory Factor Analysis (CFA), to avoid model specification errors. These updates will be described in section 2.4.

Quantitative studies have investigated if there are differences or relationships between SRL processes and variables like quantity of practice (Ritchie and Williamon, 2013; Bonneville-Roussy and Bouffard, 2015; Araújo, 2016; Topoğlu and Topoğlu, 2018; Boon, 2020; Zhang et al., 2023), gender (Topoğlu and Topoğlu, 2018; Nusseck and Spahn, 2021; Liu, 2023a), musical instrument (Nielsen, 2004; Liu, 2023a), expertise (Boon, 2020; Kaleli, 2021), and age (Bonneville-Roussy and Bouffard, 2015). We did not find evidence of correlations or differences between SRL scores and nationality in the reviewed quantitative studies, besides Araújo's (2016).

Thus, the purpose of the study is to explore the SRL behaviors of advanced musicians from Brazil and Portugal and how these processes vary according to gender, musical instrument, quantity of practice (measured by hours of practice per day and days of practice per week), expertise (determined from information about the participants' formal music education), professional experience (measured by years since first public music performance), age, and nationality.

In light of previous findings in the SRL literature, we formulated the following four hypotheses. First, Exploratory Factorial Analysis will identify the same dimensions as the first study by Araújo (2016); second, similar to the first application of the questionnaire (Araújo, 2016), the SRL scores will report no significant differences regarding gender, nationality, and musical instrument; third, advanced musicians who declare spending more hours per day in music practice will score higher in SRL processes; fourth, more experienced participants will score higher in SRL processes.

2 Materials and methods

2.1 Instrument

The Attitudes in Music Practice questionnaire (Araújo, 2016) applied in this study comprises 22 items (see [Supplementary material](#)) and was validated both in Portuguese and English. These items were designed to assess various aspects of self-regulated practice behaviors, such as the management and evaluation of practice goals (e.g., ‘I set specific goals for my practice sessions’), time management and physical environment structuring (e.g., ‘I plan the time of my practice sessions’), strategy selection (e.g., ‘I am aware of the strategies that I use during practice’), self-efficacy beliefs (e.g., ‘I am able to achieve my practice goals satisfactorily’), external causal attributions (e.g., ‘I cannot reach my practice goals without the support of some external factors - peers, teachers, materials, environment’), help-seeking (e.g., ‘I request help from others [teachers, peers, composers, musicologists and specialists]’) and

external resources (e.g., ‘I seek information from several sources - books, CDs, videos, internet, biographies, arts, etc. to support my study’).

Participants were required to rate their self-regulated practice behaviors on a 5-point Likert-type scale, based on the frequency of behaviors, ranging from 1-never to 5-always in some items, and level of agreement ranging from 1-completely disagree to 5-completely agree in other items (see Appendix for the complete questionnaire). The questionnaire also included a demographic data section, which requested information about the participants' age, gender, nationality, formal education, musical instrument, practice time (hours of practice per day and days of practice per week), and how many years from their first public musical performance.

2.2 Data retrieval

The questionnaire and the Formal Consent form (approved by the local Ethics Committee) were hosted by the Lime Survey platform, managed by the University of Aveiro, and with completed responses submitted through a hyperlink. Prior to its dissemination, we asked 9 SRL researchers and advanced musicians to answer the questionnaire between January 8 and January 9, 2021 to identify eventual difficulties in understanding experienced by participants. The responses returned by the pilot study were removed from the platform to protect the final data.

Data collection occurred during the periods of lockdown in Portugal and Brazil and all contact with participants was therefore virtual. The researchers prepared two invitations to participate in this research project, one addressed to teachers from higher education institutions, distributed by email, and the other for musicians in general and for students attending these institutions, which was disseminated by e-mail and social media in order to attract a wide range of participants.

The questionnaire link was active from January 10, 2021 until May 7, 2021. 476 people answered the questionnaire; only 306 answered the complete questionnaire correctly.

2.3 Sample

The inclusion criteria consisted of Brazilian and Portuguese advanced musicians. Based on this criteria, we removed six participants because they were under 18 years old and had limited musical instrument experience. The final sample consisted of 300 participants (54.3% male, 44.0% female, 1% non-binary, and 0.7% did not respond). 68.0% ($n = 204$) of the participants were Brazilian, and 32.0% ($n = 96$) were Portuguese.

Their ages ranged from 18 to 66 years old, with a mean of 32.70 years old ($SD = 11.261$), mode 22 years old; with most participants in the age range between 26 and 35 years of age ($n = 104$, more in [Table 1](#)).

Since the educational system in Brazil differs from Portugal, we organized this information from participants into categories of expertise: participants in their first 2 years of professional music education (undergraduate studies) were allocated to the Student category. Participants in their final year of undergraduate studies were classified as Pre-professionals, and participants who had completed undergraduate studies and/or undertook graduate studies were allocated to the Professional category.

TABLE 1 Age range.

Age range	Frequency	Percentage
18–25 years old	96	32.0%
26–35 years old	104	34.7%
36 +	99	33.3%

TABLE 2 Expertise categories.

Expertise	Frequency	Percentage
Student	58	19.3
Pre-Professional	80	26.7
Professional	162	54.0

TABLE 3 Musical instrument categories.

Instrument	Frequency	Percentage
Plucked strings	149	49.8
Keyboards	32	10.7
Bowed strings	38	12.7
Voice	24	8.0
Wind	46	15.4
Percussion	5	1.7
Conductors	5	1.7
Missing	1	0.3

The descriptive results identify how 54% of participants fell into the Professional category. Table 2 presents the results for this variable.

Regarding years of experience since their first public concert, the majority of participants (76.0%) declared having 10 or more years of professional performance experience and with the majority beginning their instrument lessons when they were 12 years old or younger (56.7%).

As regards musical instruments, 49.7% of participants declared playing plucked string instruments ($n = 149$), 15.3% wind instruments ($n = 46$), 12.7% bowed strings ($n = 38$), 10.7% keyboards ($n = 32$), 8% voice ($n = 24$), 1.7% percussion ($n = 5$) and 1.7% conductors ($n = 5$). Due to analysis requirements regarding the minimum number of participants in each category (Field, 2018), percussionists and conductors were not included in the inferential analysis. One participant did not register information about the instrument (Table 3).

When asked about the practice quantity, participants answered how many days per week they practiced, and how much time per day (in hours). 13.3% declared practicing 1 to 2 days per week, 23.2% practiced 3 to 4 times per week, 37.3% of participants ($n = 112$) declared practicing 5 to 6 days a week, and 26.0% ($n = 78$) practiced daily. The majority of participants declared practicing between 1 and 2 h per day (27.7%). Table 4 reports the length of daily practice hours.

2.4 Data analysis procedure

2.4.1 Exploratory factor analysis

Exploratory Factor Analysis (EFA) served to explore the structure of the scale and assess its internal reliability. The dispersion matrix was generated by polychoric correlations (Muthén and Kaplan, 1985, 1992; Baglin, 2014). Researchers suggest employing polychoric correlations

TABLE 4 Practice hours per day.

Practice time per day	Frequency	Percentage
<1 h	48	16.0
1–2 h	83	27.7
4–3 h	80	26.7
3–4 h	59	19.7
> 4 h	30	10.0

when conducting EFA on data derived from ordinal variables (Baglin, 2014). We assessed sampling adequacy and factorability according to the Kaiser-Meyer-Olkin (KMO) index and significance by Bartlett's test of sphericity (Rogers, 2022). The extraction method adopted was Robust Diagonally Weighted Least Squares (RDWLS–Asparouhov and Muthén, 2010). This estimator is most suitable for categorical data and is robust in handling deviations from normality (DiStefano and Morgan, 2014). To determine the appropriate number of factors, we deployed parallel analysis with random permutation of observed data (Timmerman and Lorenzo-Seva, 2011; Baglin, 2014) that has proven to be more effective than traditional methods in accurately determining the actual number of dimensions (Timmerman and Lorenzo-Seva, 2011; Baglin, 2014). Items with factor loadings ≥ 0.30 were considered relevant and included in the model. We implemented the Robust Promin rotation method (Lorenzo-Seva and Ferrando, 2019). It is advisable to select oblique rotation methods for multidimensional scales, as most factors within these scales tend to have some level of interrelation, and orthogonal rotations presume that the factors are independent (Fabrigar et al., 1999; Fabrigar and Weneger, 2011; Baglin, 2014; Lloret-Segura et al., 2014; Howard, 2016). Model adequacy was assessed by the Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), and Non-Normed Fit Index - Tucker-Lewis Index (NNFI). According to the literature (Fabrigar et al., 1999; Brown, 2015), the RMSEA values should be less than 0.08, and the CFI and NNFI results should be above 0.90. EFA was performed using the software FACTOR version 12 (Lorenzo-Seva and Ferrando, 2006; Ferrando and Lorenzo-Seva, 2017; Rogers, 2022).

2.4.2 Internal consistency

We tested the internal consistency of each factor by McDonald's Omega coefficients (Hayes and Coutts, 2020) and the Composite Reliability Index (Raykov, 1997; Valentini and Damásio, 2016; with ≥ 0.60 considered satisfactory). These calculations were performed by Jasp software (version 0.16.4) for McDonald's Omega, and the Composite Reliability Calculator for the Composite Reliability Index. We did not apply Cronbach's alpha coefficient due to current discussions questioning its suitability for the types of data and models deployed in psychological research, which often violate the assumptions made by this coefficient (McNeish, 2018; Hayes and Coutts, 2020). Especially in scales with a smaller number of items, Cronbach's alpha may report reliability lower than the scale actually attains (Zinbarg et al., 2006; McNeish, 2018).

2.4.3 Independent sample t test

An independent sample t-test was conducted to investigate how the "Attitudes in Music Practice" scale scores differed between groups, according to Gender and Nationality. The assumption of homogeneity of variance was evaluated using Levene's test and, when violated,

we applied Welch's statistic. Bootstrapping procedures (1,000 re-samples; 95% IC BCa) were performed to correct for the non-normality of the sample distribution and to increase the reliability of the results (Tan and Tan, 2010). We calculated the effect size according to Hedges g to account for bias in unbalanced samples in keeping with Cohen's benchmarks (Cohen, 1988); $g = 0.2, 0.5$, and 0.8 correspond to small, medium, and large effects (Lakens, 2013). This data analysis made recourse to IBM SPSS Statistics software (Version 28).

2.4.4 Analysis of variance (ANOVA)

One-way ANOVA evaluated the potential differences in musical practice attitudes based on the scores of the three dimensions (Practice Organization, Personal Resources, External Resources) within group variables: instrument, practice hours per day, days of practice per week, number of concerts per year, expertise, and age. The assumption of variance homogeneity was assessed using Levene's test, and post-hoc evaluation was performed using the Bonferroni correction for multiple comparisons (Field, 2018). We then applied bootstrapping procedures (1,000 re-samplings; 95% IC BCa) to obtain a higher level of result reliability, correcting any normality deviations from the sample distribution and returning more robust confidence intervals for the mean differences (Haukoos and Lewis, 2005; Tan and Tan, 2010). The coefficient ω^2 represented effect size, according to Cohen's benchmarks (Cohen, 1988, $0.01 = \text{small}$; $0.06 = \text{medium}$; $0.14 = \text{large}$). We made recourse to IBM SPSS Statistics (Version 28) as the statistical software for this analysis.

2.4.5 Chi-square

We assessed the relationships among the categorical variables by the chi-square test of association. These relationships were deemed significant when the adjusted residuals were > 1.96 (regardless of sign).

3 Results

3.1 Construct validity and internal consistency

3.1.1 Exploratory factor analysis

We examined the dataset to identify any inconsistent and/or missing values related to participant responses to scale items with no such inconsistencies detected. However, we excluded from this analysis participants who did not respond to all the scale items. Therefore, for analyses related to the internal structure of the instrument, the total sample size was $n = 297$. Table 5 presents the univariate descriptive analysis for the 22 original items of the "Attitudes in Musical Practice" scale.

The first stage of analysis included all the 22 scale items. Bartlett's sphericity test returned a significant result [$\chi^2 = 3219.2$ ($df = 231$; $p = 0.000010$)] and the KMO measure (0.85772) was also above that recommended (Howard, 2016). The robust goodness of fit statistics were satisfactory (RMSEA = 0.062; NNFI; Tucker and Lewis = 0.963; CFI = 0.970) with the parallel analysis indicating the extraction of two factors. According to the two-factor model, all items achieved a relevant factor loading (≥ 0.30); however, items 6 ("I use specific strategies related to my practice goals") and 17 ("I request help from others teachers, peers, composers, musicologists and specialists") reported cross loading (see Supplementary Table S1).

We carried out further analysis to undertake the extraction of the three dimensions based on Araújo's preliminary study from 2016. The three-factor model maintained the Bartlett [$\chi^2 = 3219.2$ ($df = 231$; $p = 0.000010$)] and KMO (0.85772) results, and the robust goodness of fit indices returned improvements (RMSEA = 0.043; NNFI; Tucker and Lewis = 0.982; CFI = 0.987). Item 17 ("I request help from others - teachers, peers, composers, musicologists and specialists") loaded above 0.30 on only one dimension. However, item 6 still presented cross loading (Supplementary Table S2).

The model also reflects theoretical inconsistency in the distribution of items across factors. Item 5 ("I understand that my goals are challenging") was allocated to factor 3, which groups items related to the External Factors dimension. This distribution would thus hinder the discussion of this dimension as a whole. Therefore, items 5 and 6 ("I use specific strategies related to my practice goals") were excluded and we performed a new EFA.

Both Bartlett's test of sphericity and the KMO results were acceptable [$\chi^2 = 2851.7$ ($df = 210$; $p = 0.000010$); KMO = 0.85718]. The robust goodness of fit indices demonstrated a better fit than the previous models: (RMSEA = 0.037; NNFI; Tucker and Lewis = 0.986; CFI = 0.990). Table 6 displays the factorial loadings of this updated model.

Thus, Factor 1 comprises the items related to Practice Organization processes that incorporate the behavioral determinants of SRL (Zimmerman, 1989). Factor 2, designated Personal Resources by Araújo (2016), gathers those processes associated with personal determinants, and Factor 3, External Resources, refers to influences from the surrounding environment, which is the third determinant described by Zimmerman (1989). This analysis returns extraction scores similar to those of Araújo's (2016) primary study. Thus, analyses below will not contain items 5 and 6.

3.1.2 Internal consistency

Factor 1 internal consistency resulted in McDonald's $\omega = 0.90$; [CI 95% (0.88–0.91)], composite reliability = 0.918; Factor 2 $\omega = 0.78$ [CI 95% (0.75–0.88)], composite reliability = 0.841; and Factor 3 $\omega = 0.93$ [CI 95% (0.93–0.94)], composite reliability = 0.953.

3.1.3 Total Scores

Participants obtained a mean score of 30.13 (SD = 5.93) in Practice Organization, 28.69 (SD = 3.93) in Personal Resources, and 18.98 (SD = 3.22) in External Resources. Supplementary Table S17 contains this data and total scores.

3.2 Differences in the SRL scores deriving from the variables measured

3.2.1 Gender

The T test results for gender return no significant differences in the SRL scores between groups across any of the dimensions [Practice Organization: $t(291.802) = -1.509$, $p = 0.132$ IC 95% Bca: -2.36 ; 0.343; Personal Resources: $t(292) = 1.069$, $p = 0.286$ (IC 95% Bca: -0.401 ; 1.424); External Resources: $t(291.366) = -0.937$, $p = 0.350$ (IC 95% Bca: -1.023 ; 0.345)]. These descriptive statistics are made available in Supplementary Table S3. Considering the low sample size of participants in the non-binary category, we were compelled to conduct the test only with the male and female categories.

TABLE 5 EFA univariate descriptive analysis.

	Item	Mean	Confidence Interval-95%		Variance	Skewness	Kurtosis (Zero centered)
			Lower	Upper			
1	I set goals for my practice sessions	3.95	3.82	4.10	0.897	−0.628	−0.195
2	I set short term goals (minutes, hours, days)	3.70	3.53	3.87	1.240	−0.621	−0.342
3	I set long-term goals (weeks, months, years)	3.89	3.74	4.05	1.073	−0.732	−0.169
4	I set specific goals for my practice sessions	3.91	3.78	4.06	0.903	−0.665	−0.010
5	I understand that my goals are challenging	4.14	4.02	4.27	0.726	−0.780	0.094
6	I use specific strategies related to my practice goals	4.12	4.01	4.25	0.630	−0.841	0.959
7	I am aware of the strategies that I use during practice	4.23	4.12	4.35	0.591	−0.967	1.326
8	I use strategies that have been effective in the past	4.13	4.01	4.25	0.619	−0.694	0.336
9	I know when and in which contexts my strategies will be most effective	3.88	3.75	4.02	0.804	−0.581	0.053
10	I understand the nature and demands of my musical activities	4.38	4.27	4.50	0.614	−1.129	0.599
11	I know what I must do in order to complete my musical activities satisfactorily	4.02	3.89	4.16	0.794	−0.741	0.150
12	I plan the order of the activities of my practice sessions	3.64	3.47	3.81	1.293	−0.453	−0.702
13	I plan the time of my practice sessions	3.45	3.28	3.63	1.386	−0.324	−0.785
14	I organize the physical environment of my practice sessions	3.80	3.63	3.98	1.376	−0.746	−0.346
15	I evaluate the progress made toward my goals	3.73	3.58	3.88	1.003	−0.476	−0.408
16	I seek information from several sources (book, CDs, videos, internet, biographies, arts, etc.) to support my study	3.97	3.82	4.12	1.036	−0.734	−0.263
17	I request help from others (teachers, peers, composers, musicologists and specialists)	3.62	3.47	3.79	1.163	−0.167	−0.936
18	I am able to achieve my practice goals satisfactorily	3.80	3.68	3.92	0.637	−0.424	0.069
19	I cannot reach my practice goals without the support of some external factors (peers, teachers, materials, environment)	3.52	3.35	3.70	1.387	−0.472	−0.641
20	I understand my strengths and weaknesses	4.22	4.12	4.34	0.552	−0.687	0.055
21	I practice in order to improve my musical skills	4.50	4.40	4.61	0.499	−1.496	2.435
22	I practice in order to achieve high ratings (e.g., grades) and positive feedback	3.30	3.13	3.49	1.465	−0.228	−0.825

3.2.2 Nationality

The SRL scores when organized by nationality also presented no significant differences according to the T test results [Practice Organization: $t(295) = -0.155$, $p = 0.877$ (IC 95% Bca: −1.505; 1.251), Personal Resources: $t(295) = -1.257$, $p = 0.210$ (IC 95% Bca: −1.550; 0.302); External Resources: $t(223.718) = 0.818$, $p = 0.415$ (IC 95% Bca: −0.475; 1.021)]. In turn, [Supplementary Table S4](#) sets out these descriptive statistics.

3.2.3 Musical instrument

Levene's tests describe a homogeneity of variance across every dimension: Practice Organization [Levene (4, 284) = 0.253, $p = 0.908$],

Personal Resources [Levene (4, 283) = 0.624, $p = 0.646$], External Resources [Levene (4, 284) = 1.744, $p = 140$].

The ANOVA results for differences between musical instruments and SRL were also statistically non-significant [Practice Organization: $F(4, 284) = 0.469$, $p = 0.758$; Personal Resources: $F(4, 283) = 1.24$, $p = 0.290$; External Resources: $F(4, 284) = 1.10$, $p = 0.354$]. These descriptive statistics are available in [Supplementary Table S5](#).

3.2.4 Quantity of practice: practice hours per day

Levene's tests report a homogeneity of variance across all dimensions: Practice Organization [Levene, (4, 294) = 0.795, $p = 0.529$]; Personal Resources [Levene, (4, 292) = 1.053, $p = 0.380$];

TABLE 6 Factor loadings.

	Item	F1	F2	F3
1	I set goals for my practice sessions	0.969		
2	I set short term goals (minutes, hours, days)	0.736		
3	I set long-term goals (weeks, months, years)	0.385		
4	I set specific goals for my practice sessions	0.956		
12	I plan the order of the activities of my practice sessions	0.709		
13	I plan the time of my practice sessions	0.703		
14	I organize the physical environment of my practice sessions	0.451		
15	I evaluate the progress made toward my goals	0.636		
7	I am aware of the strategies that I use during practice		0.743	
8	I use strategies that have been effective in the past		0.484	
9	I know when and in which contexts my strategies will be most effective		0.836	
10	I understand the nature and demands of my musical activities		0.804	
11	I know what I must do in order to complete my musical activities satisfactorily		0.861	
18	I am able to achieve my practice goals satisfactorily		0.461	
20	I understand my strengths and weaknesses		0.679	
16	I seek information from several sources (books, CDs, videos, Internet, biographies, arts, etc.) to support my study			0.449
17	I request help from others (teachers, peers, composers, musicologists and specialists)			0.717
19	I cannot reach my practice goals without the support of some external factors (peers, teachers, materials, environment)			0.635
21	I practice in order to improve my musical skills			0.403
22	I practice in order to achieve high ratings (e.g., grades) and positive feedback			0.325

External Resources [Levene, (4, 294) = 1.554, $p = 0.187$]. The descriptive statistics for all groups and dimensions are set out in [Supplementary Table S6](#) in the [Appendix](#).

The ANOVA results demonstrate significant differences with small size effects between the groups in Practice Organization [$F(4, 294) = 3.818$, $p = 0.005$, $\omega^2 = 0.04$]. Specifically, there are differences in the mean scores between musicians who practice less than 1 h per day ($M = 28.55$, $SD = 6.05$) and those who practice more than 4 h per day ($M = 32.77$, $SD = 5.69$) as well as between participants practicing between 1 and 2 h per day ($M = 29.17$, $SD = 6.26$) and those practicing more than 4 h per day ($M = 32.77$, $SD = 5.69$).

Regarding the External Resources dimension, there are medium size effect differences [$F(4, 294) = 7.608$, $p < 0.001$, $\omega^2 = 0.08$]. These differences emerge when comparing musicians who practice less than 1 h per day ($M = 17.09$, $SD = 3.49$) with those who practice within the range of 2 to 3 h ($M = 19.44$, $SD = 3.34$) and between 3 and 4 h ($M = 20.14$, $SD = 2.70$), as well as with participants practicing over 4 h per day ($M = 19.60$, $SD = 2.52$). Additionally, the results also detail differences between participants practicing between 1 and 2 h per day ($M = 18.55$, $SD = 3.03$) and those practicing for between 3 and 4 h per day ($M = 20.14$, $SD = 2.70$). [Supplementary Table S7](#) describes the post-hoc tests deploying Bonferroni correction and CI through Bootstrapping.

3.2.5 Quantity of practice: practice days per week

All dimensions display homogeneity of variance: Practice Organization [Levene, (3, 295) = 0.324, $p = 0.808$]; Personal Resources [Levene, (3, 293) = 2.465, $p = 0.062$]; External Resources [Levene, (3,

295) = 0.254, $p = 0.859$] with the complete descriptive statistics set out in [Supplementary Table S8](#) (see [Appendix](#)).

The ANOVA results point to small effect differences in the Practice Organization dimension [$F(3, 295) = 6.157$, $p < 0.001$, $\omega^2 = 0.049$]. In particular, there are significant differences between the categories of musicians who practice between 1 and 2 days per week ($M = 26.88$, $SD = 6.51$) and musicians who practice between 5 and 6 days per week ($M = 30.83$, $SD = 5.74$) as well as musicians practicing daily ($M = 31.35$, $SD = 5.39$).

In the External Resources dimension [$F(3, 295) = 9.810$, $p < 0.001$, $\omega^2 = 0.081$], there are significant medium size differences between musicians practicing between 1 and 2 days per week ($M = 16.95$, $SD = 3.08$) and musicians practicing between 5 and 6 days per week ($M = 19.28$, $SD = 3.04$) as well as musicians practicing daily ($M = 20.05$, $SD = 3.37$). Differences also appear between musicians practicing between 3 and 4 days per week ($M = 18.47$, $SD = 2.82$) and their peers practicing daily ($M = 20.05$, $SD = 3.37$). These post-hoc tests appear in [Supplementary Table S9](#).

3.2.6 Expertise

After excluding the possibility of non-homogeneity of variance across all dimensions [Practice Organization: Levene (2, 296) = 0.412, $p = 0.663$; Personal Resources: Levene (2, 294) = 0.186, $p = 0.831$; External Resources: Levene (2, 296) = 1.225, $p = 0.295$], we conducted a one-way ANOVA test to examine the differences between levels of expertise. The corresponding descriptive results are available in [Supplementary Table S10](#).

The ANOVA results reveal significant differences with a small size effect in the Personal Resources Dimension [$F(2, 294) = 5.659$,

$p=0.004$; $\omega^2=0.030$] between the Pre-Professionals ($M=27.65$; $SD=3.62$) and the Professionals ($M=29.36$; $SD=3.87$). In terms of the External Resources dimension, the results convey significant differences with small size effects [$F(2, 296)=8.085$, $p<0.001$; $\omega^2=0.045$] between Students ($M=20.21$; $SD=3.31$) and Professionals ($M=18.35$; $SD=2.98$). [Supplementary Table S11](#) (in the [Appendix](#)) details the post-hoc tests for this variable.

3.2.7 Age

Levene's test confirms the homogeneity of variance across every dimension [Practice Organization: Levene (2, 296)=2.475, $p=0.086$; Personal Resources: Levene (2, 294)=1.319, $p=0.269$; External Resources: Levene (2, 296)=0.232 $p=0.793$] with the descriptive results provided in [Supplementary Table S12](#) ([Appendix](#)).

The ANOVA results report small size differences in the Practice Organization dimension [$F(2, 296)=3.697$; $p=0.026$; $\omega^2=0.018$] between participants aged 26 to 35 years ($M=29.03$, $SD=6.48$) and those aged 36 years or older ($M=31.27$, $SD=5.84$). The Personal Resources dimension returned differences with a medium size effect [$F(2, 294)=12.333$, $p<0.001$; $\omega^2=0.071$] between musicians aged 18 to 25 years ($M=27.88$, $SD=4.00$) and those aged 36 years or older ($M=30.24$, $SD=3.20$), as well as between participants aged 26 to 35 years ($M=27.95$, $SD=4.09$) and those aged 36 years or older ($M=30.24$, $SD=3.20$). The External Resources dimension displays differences with a medium size effect between participants [$F(2, 296)=12.690$, $p<0.001$; $\omega^2=0.073$] aged 18 to 25 years ($M=20.28$, $SD=2.89$) and those aged 36 years or older ($M=18.21$, $SD=3.12$). [Supplementary Table S13](#) presents the post-hoc tests.

3.2.8 Time since the first public performance

Levene's test results convey a homogeneity of variance in each of the three factors [Practice Organization: Levene (2, 296)=0.030, $p=0.970$; Personal Resources: Levene (2, 294)=1.618, $p=0.200$; External Resources: Levene (2, 296)=0.319, $p=0.727$]. These descriptive results are available in [Supplementary Table S14](#) ([Appendix](#)).

The ANOVA results display medium sized differences in the Personal Resources dimension [$F(2, 294)=10.412$, $p<0.001$; $\omega^2=0.060$] between the "1 to 9 years" group ($M=26.75$; $SD=4.47$) and the "10 to 29 years" group ($M=28.74$; $SD=3.78$); between the "1 to 9 years" group and the "30 years or more" group ($M=30.18$; $SD=3.29$); and between the "10 to 29 years" group and the "30 years or more" group. In the External Resources dimension, we may report medium sized differences [$F(2, 296)=10.547$, $p<0.001$; $\omega^2=0.060$] between the "1 to 9 years" category ($M=20.73$; $SD=2.88$) and the "10 to 29 years" category ($M=18.83$; $SD=3.15$); and between the "1 to 9 years" category and the "30 years or more" category ($M=17.98$; $SD=3.23$). The complete post-hoc tests may be found in [Supplementary Table S15](#) ([Appendix](#)).

3.3 Relationships between variables

3.3.1 Practice hours per day X expertise

We then carried out a chi-square test of independence (3×5) to investigate the relationship between hours of study and participant expertise levels (student, pre-professional, and professional). The results identify a significant association between practice hours and expertise [$\chi^2(8)=16.812$, $p=0.032$, Cramer's $V=0.16$]. Analyses of the adjusted standardized residuals demonstrate that the student category

statistically associated with more hours of study (1 to 2 h and 3 to 4 h of study per day). On the other hand, professionals were statistically associated with fewer hours of study (up to 1 h of study per day). Pre-professional participants did not show a significant relationship with any of the practice time categories. [Supplementary Table S16](#) presents these estimates (see [Appendix](#)).

4 Discussion

This study set out to investigate the differences in the SRL scores achieved by advanced musicians according to age, gender, nationality, musical instrument, quantity of practice, expertise and quantity of professional experience. As described above, 300 participants completed a survey with the resulting data analyzed through parametric statistical tests. The findings report no statistically significant differences among the categories of gender, nationality and musical instrument. These results are consistent with those obtained in the first application of the same instrument (Araújo, 2016). Other studies of a similar design and sample, produced by Bonneville-Roussy and Bouffard (2015), Liu (2023a), Nusseck and Spahn (2021), and Topoğlu and Topoğlu (2018), also failed to encounter any gender differences.

Similar to our study, Nielsen (2004) reports no significant differences between instrument categories. In Liu's (2023a) survey, brass players reported employing more learning strategies than keyboard players. In our study, woodwind and brass players were included in the same category due to the small sample size. Our results may not point out any significant differences existing as almost half of our sample were plucked string players.

The quantity of practice was measured according to two variables: the number of practice hours per day, and the practice days per week. Regarding the Practice Organization dimension, musicians that declared practicing more hours per day and more days per week obtained higher scores. In the Personal Resources dimension, there are no differences between the SRL scores and the categories of quantity of practice similar to the first application of this scale by Araújo (2016). However, the results for the External Resources dimension did contrast: while musicians who practiced for more than 4 h a day registered lower scores in this dimension (in comparison to participants who practiced between 3 and 4 h), and those who practiced every day of the week reported increased scores (in comparison with participants who practiced less days per week).

The literature has explored the correlation between the quantity of practice time and the self-regulatory behaviors exhibited by advanced musicians. Previous descriptive-correlational studies by Miksza and Tan (2015), Topoğlu and Topoğlu (2018), and Ritchie and Williamon (2013), as well as observational studies by Boon (2020) and the microanalysis study by Miksza et al. (2018), which measured the quantity of practice hours per day, also found that a greater number of practice hours corresponds to higher SRL scores.

However, when relating the quantity of practice hours per day to the expertise variable, the chi-square test of independence (3×5) here demonstrates that students were associated with more hours of practice per day than professionals. Furthermore, professionals were statistically associated with fewer hours of practice (up to 1 h of practice per day). Pre-professional participants did not show a significant relationship with any of the practice time categories.

These results are similar to those of Bonneville-Roussy and Bouffard (2015), Araújo (2016), and Dos Santos and Gerling (2011),

suggesting that, as musicians gain more experience, their practice becomes more self-regulated, thereby reducing the practice time necessary to achieving goals. While musicians who practice for extended periods report greater recourse to SRL processes, more experienced musicians claim to practice for less time. Students, who spend more time in the practice room, may simply have more information to report about their strategies. By contrast, professional musicians may spend more time in activities such as rehearsals, performances or teaching (Vellacott and Ballantyne, 2022). Thus, self-regulation eventually serves as a determining factor for individuals to be able to sustain their artistic activities. Studies that measure SRL and time management in advanced musicians portray improvements in time management and enhanced practice efficiency as the main outcomes (Kim, 2010; Clark and Williamon, 2011; Miksza, 2015; Pike, 2017; López-Íñiguez and McPherson, 2020).

The Expertise variable categorized participants into Students, Pre-Professionals, and Professionals. ANOVA analysis identifies significant differences in the Personal Resources dimension, with Professionals obtaining higher scores than Pre-professionals. On the other hand, in the External Resources dimension, Students scored higher than Professionals.

The same differences emerged when musicians were asked to report the number of years since their first public performance. Musicians reporting more years since their first public performance scored higher in the Personal Resources dimension and lower in the External Resources dimension. Similarly, in terms of age, older musicians scored higher in the Personal Resources dimension and lower in the External Resources dimension. Bonneville-Roussy and Bouffard (2015) describe how older participants deploy deliberate practice strategies more frequently than younger participants. These findings suggest that, as musicians gain in experience, their metacognitive processes become more relevant than the social factors of their performance.

The items included in the External Resources dimension encompass processes such as seeking help from others (teachers, peers, composers, musicologists, and specialists) as well as actively searching for other sources of information able to support daily practice, such as books, recordings, videos, the Internet, and social media. In the 2002 article by McPherson and Zimmerman, the first to adapt Zimmerman's cyclical model to music learning, the authors state they did not find any mention of seeking external resources in the literature on musical practice (McPherson and Zimmerman, 2002). Two decades later, music practice research has advanced (How et al., 2022) and therefore enables discussion of these results. Over the years, other studies have reported that professional musicians rely less on external assistance when preparing for performances, in comparison with students, even among advanced musicians from diverse cultural backgrounds who not only received different musical education but also face different job markets (Nielsen, 2004; Dos Santos and Gerling, 2011; Araújo, 2016; Volioti and Williamon, 2017).

On the other hand, when approaching undergraduate students, studies examining the practices of pre-service music teachers obtain results that portray how more advanced students on this study program employ more help-seeking processes than their peers during the early years of the program (Boon, 2020; Kaleli, 2021). Similarly, microanalysis studies register the greater use of external resources among undergraduate participants with higher music performance scores (Miksza et al., 2018; McPherson et al., 2019; Osborne et al., 2021). This suggests that, even though professionals report minimal

usage of strategies related to social factors, this behavior is adopted by students with higher levels of performance evaluation in keeping with how aspiring musicians can benefit from seeking external resources during their practice sessions. This proactive behavior enables them to engage in "modeling, listening, and critical appraisal" (Ritchie and Williamon, 2013) and engage in positive reinforcement through exchanging knowledge with peers (Dos Santos Silva et al., 2023; Liu, 2023b), which are crucial for their growth and attainment of performance excellence, particularly during the learning phase.

The results of this study should be considered in light of its limitations. The sample consisted of volunteers, which may affect the generalizability of the findings and may not fully encompass the variety existing in the population studied. Nevertheless, data anonymity may have mitigated potential sample bias.

Furthermore, SRL processes in descriptive research may reach a broader population but may not accurately reflect actual practice behaviors. Recent studies employing the same questionnaire in structured interviews have indicated that conceptions of SRL processes, such as goal-setting and environment structuring, diverge considerably among advanced musicians (Silva and Fiorini, 2021). Other studies have combined quantitative scales with the observation of SRL processes as they occur, for example in microanalysis studies (Miksza et al., 2018; McPherson et al., 2019; Osborne et al., 2021). Future research might combine large sample surveys with observation applied to a sample subset. Moreover, follow-up studies using quantitative scales could efficiently measure the maintenance of SRL behaviors learned through intervention over time.

5 Conclusion

The purpose of our study was to evaluate the reliability of a self-regulation measurement scale in Portuguese. Additionally, we sought to gather current information about the practice habits of advanced musicians who study and work in two Portuguese-speaking countries. Our two first hypotheses were confirmed: the EFA results organized the same items into the three dimensions as Araújo (2016) first study, suggesting that the questionnaire is robust for assessing SRL processes. We may also report that there were no significant differences in SRL scores based on gender, nationality or musical instrument. Participants who declared practicing for more time scored higher in the Practice Organization dimension across both variables (hours per day and days per week). In the External Resources dimension, musicians who declared practicing every day of the week scored higher (than all the other categories). However, participants who reported practicing more hours per day then scored lower in this dimension, and that partially confirms hypothesis 3. Lastly, the fourth hypothesis was also partially confirmed. More experienced musicians scored higher in the Personal Resources dimension but lower in the External Resources dimension, based on expertise, age, and years since their first public performance.

The results of this research suggest that SRL constitutes a set of processes that musicians acquire throughout their learning journey and that these interlink with a significant amount of practice time. As these processes become internalized, practicing becomes more efficient and the time required to achieve performance goals decreases. Similarly, the search for assistance and external resources is an expected behavior in the professional development of musicians. As they attain higher levels of professional performance, personal resources surpass their recourse to external factors.

Developing and validating questionnaires tailored to the specificities of music practice should be encouraged as this may improve music teacher diagnosis of just which SRL dimensions their students need to consider most as well as keeping track of positive changes in SRL behaviors. In the present study, we provided psychometric evidences to this instrument; therefore, new studies should be conducted to establish norms that will be used to contextualize individual scores on this test. Future studies may use the questionnaire to collect empirical results and compare scores with new samples in the context of Brazil and Portugal, concerning the total table.

In small samples, from which data may not be generalized, the questionnaire is especially helpful as it may encourage advanced students to stop and reflect on their practice habits (Silva and Fiorini, 2021). Furthermore, future research might further assess the consistency of this SRL measuring scale for the learning processes undertaken by beginner and intermediate musicians.

Data availability statement

The datasets presented in this article are not readily available because the raw data supporting the conclusions of this article will be available after the full research is completed. Requests to access the datasets should be directed to camillasilvamusica@gmail.com.

Ethics statement

The studies involving humans were approved by UNICAMP-PRÓ-REITORIA DE PESQUISA DA UNIVERSIDADE ESTADUAL DE CAMPINAS-Comitê de Ética em Pesquisa em Ciências Humanas-CHS/UNICAMP. CAAE: 09319219.8.0000.8142. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their on-line informed consent to participate in this study.

Author contributions

CS: Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Software, Validation, Writing – original draft, Writing – review & editing, Conceptualization. MA:

Conceptualization, Data curation, Investigation, Methodology, Software, Writing – review & editing, Writing – original draft. HM: Funding acquisition, Supervision, Writing – review & editing, Writing – original draft.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2024.1324100/full#supplementary-material>

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5. DISCUSSÃO GERAL

O objetivo geral desta tese foi de explorar os processos de autorregulação de músicos avançados a partir de dois eixos teóricos dentro do construto da Autorregulação da Aprendizagem à luz da Teoria Social Cognitiva: o modelo cíclico de Zimmerman (que contém as fases: Antecipação, *Performance*/Controle Volitivo, Autorreflexão) (Zimmerman, 1990, 2000, 2002; Zimmerman; Campillo, 2003) e a abordagem multidimensional das seis dimensões psicológicas da aprendizagem, quais sejam, Motivo, Método, Comportamento, Tempo, Ambiente Físico e Fatores Sociais (McPherson; Zimmerman, 2002, 2011; Zimmerman; Risemberg, 1997).

Ambos os modelos englobam os processos autorregulatórios descritos na teoria. No caso, a principal diferença reside na maneira como esses processos são organizados e instrumentalizados para medir comportamentos autorregulatórios. No modelo cíclico, os processos são organizados de maneira temporal, distribuídos entre as três fases e ativados antes (fase de Antecipação), durante (fase de *Performance*/Controle Volitivo) e depois da prática (fase de Autorreflexão). Essa abordagem permite que os processos sejam identificados no momento em que eles ocorrem, especialmente em estudos que envolvem a microanálise (Miksza *et al.*, 2018; McPherson *et al.*, 2019). Também por ser o modelo mais explorado na área de *performance*, foi o modelo escolhido para organizar os processos descritos pela literatura no artigo 1 desta tese.

O modelo cíclico de Zimmerman fundamentou os artigos 1 e 4. Os estudos revisados no artigo 1 compuseram a discussão dos dados obtidos empiricamente no artigo 4, que validou e replicou o questionário de Araújo (2016). Os processos autorregulatórios foram organizados no artigo 4 em fatores extraídos matematicamente pela análise fatorial exploratória (nomeadamente Organização da Prática, Recursos Pessoais e Recursos Externos).

Ao relacionar as pontuações de autorregulação nos fatores com as variáveis demográficas, encontramos resultados similares ao do estudo inicial (Araújo, 2016), os quais discutimos com os estudos da área que foram analisados na revisão sistemática (artigo 1).

Nas três variáveis relacionadas à experiência profissional (*expertise*, idade e anos desde a primeira *performance* pública), os dados indicaram que músicos profissionais, com mais idade e com maior experiência profissional, obtiveram pontuações mais altas no fator Recursos Pessoais e mais baixas no fator Recursos Externos (em comparação às demais categorias de cada variável). Esses resultados alinham-se com outros estudos descritivos de amostra similar, analisados no artigo 1 (Araújo, 2016; Dos Santos; Gerling, 2011; Nielsen, 2004; Volioti; Williamon, 2017) e apontam para a reflexão de que, ao ganhar experiência

profissional, os processos metacognitivos dos músicos tornam-se mais evidentes e são ativados com maior frequência que os fatores sociais (externos) de sua *performance*, como a busca por ajuda de pares e professores. Isso não significa que os fatores externos são uma característica que denota menor nível técnico ou *expertise*. Estratégias sociais, como pedir ajuda, são consideradas metacognitivas por alguns autores, pois requerem que o indivíduo tenha consciência de suas dificuldades e organize-as de maneira a saber qual informação ou recurso buscar (Newman, 1998; Serafim; Boruchovitch, 2010).

No estudo descritivo, as variáveis “quantidade de horas de estudo por dia” e “quantidade de dias de estudo por semana” compuseram a discussão sobre a quantidade de prática. Duas das três dimensões apresentaram diferenças significativas nas pontuações. Em Organização da Prática, músicos que praticam por mais tempo (em horas por dia e em dias por semana) obtiveram pontuações mais altas que as demais categorias. Já em Recursos Externos, os dados revelaram um movimento contrário entre as categorias das variáveis: músicos que declararam praticar todos os dias da semana obtiveram pontuações mais altas que as demais categorias; já os músicos que praticam por mais de 4 horas na semana obtiveram pontuação menor que participantes que declararam praticar entre 3 e 4 horas. Nos artigos selecionados na revisão sistemática, encontramos que mais horas por dia de estudo corresponderam a pontuações mais altas de autorregulação (Boon, 2020; Miksza; Blackwell; Roseth, 2018; Miksza; Tan, 2015; Ritchie; Williamon, 2013; Topoğlu; Topoğlu, 2018).

Ao relacionar estatisticamente as duas variáveis (experiência profissional e quantidade de prática), os resultados sugeriram que estudantes estão associados com mais horas de prática por dia que profissionais. Por sua vez, profissionais foram associados com menos horas de prática. Esse resultado é similar aos obtidos por Araújo (2016), Bonneville-Roussy e Bouffard (2015), Dos Santos e Gerling (2011), além de Vellacot e Ballantine (2022). Dessa forma, pode-se sugerir que, ao adquirirem maiores habilidades técnico-musicais, os músicos aplicam mais processos autorregulatórios em sua prática diária, o que otimiza o estudo e reduz a quantidade de tempo necessário para cumprir os objetivos selecionados. Outra reflexão é a de que os profissionais dividem seu tempo entre a prática e as atividades como ensaios, concertos e ensino, o que explica a razão pela qual os estudantes, que declararam estudar por mais tempo, têm mais informações a reportar sobre sua prática diária.

A abordagem multidimensional da autorregulação (McPherson; Zimmerman, 2002; Zimmerman; Risemberg, 1997) distribui os processos entre as seis dimensões psicológicas da aprendizagem, descritas anteriormente. A organização dimensional mostra-se vantajosa em contextos em que a autorregulação não pode ser relacionada aos comportamentos adotados antes, durante e depois do cumprimento de uma tarefa. Os artigos 2 e 3 desta tese apoiaram-se nesse eixo teórico.

No artigo 2 (Silva; Fiorini, 2021), que promoveu a autorreflexão em grupo por parte

dos graduandos em Música, a distribuição em dimensões nos permitiu identificar os hábitos de prática e as lacunas existentes nessa atividade. O artigo 3, que identificou as adaptações realizadas nas estratégias de aprendizagem em um período de 100 dias, apresentou uma reflexão sobre os processos autorregulatórios identificados no início do estudo e como eles foram modificados durante o desafio. Apesar da análise que envolve a variável do tempo, a coleta de dados não aconteceu antes do início do desafio. A discussão dos processos inseridos no modelo multidimensional demonstrou a interdependência deles.

Os resultados do estudo relatado no artigo 2 (Silva; Fiorini, 2021) sugerem que o ato de responder ao questionário desenvolvido por Araújo (2016) promoveu a autorreflexão dos participantes sobre suas dificuldades ao estabelecer objetivos e gerenciar o tempo durante a prática. Todos os participantes declararam dispor de menos tempo de estudo em relação ao que consideravam necessário, porém não discutiram estratégias para gerenciar o tempo disponível de modo que os objetivos de prática pudessem ser cumpridos dentro das horas alocadas para a atividade. Já no artigo 3 (Dos Santos Silva; Marinho; Fiorini, 2023), podemos destacar, dos resultados, a organização hierárquica dos objetivos após o início da atividade, como uma adaptação do comportamento da participante ao encontrar dificuldades para cumprir a meta do desafio.

Em relação às estratégias de autorregistro e automonitoramento, no artigo 2, somente um participante declarou utilizar um diário de prática para registrar seu repertório, o tempo de cada sessão de estudo, seus sentimentos e metas. No artigo 3, o autorregistro foi a base do desafio que consistia em filmar trechos da prática diária. A autorreflexão promovida pelo registro diário facilitou a adaptação de estratégias, o que garantiu o cumprimento da tarefa.

O diário de prática foi a estratégia metacognitiva mais empregada nas intervenções analisadas na nossa revisão sistemática (artigo 1). Os achados dos estudos indicam que manter um registro durante a prática musical traz benefícios, como refletir sobre habilidades musicais e recursos pessoais para posteriormente avaliar e adaptar as estratégias selecionadas e promover a manutenção do foco e a auto-observação (Dos Santos Silva; Marinho; Fiorini, 2023; Kim, 2010; López-Íñiguez; McPherson, 2020; Miksza, 2015; Osborne *et al.*, 2021; Pike, 2017).

Como já mencionado, no estudo realizado no artigo 2, apenas um participante declarou utilizar um diário de prática durante suas sessões de estudo, o que aponta para a necessidade de promover o emprego das estratégias de autorregistro por músicos em formação, especialmente porque o diário de prática pode afetar diversas dimensões psicológicas ao mesmo tempo. Desse modo, é possível auxiliar a visualização das metas e a sua organização em termos de hierarquia (dimensão Motivo), gerenciar a quantidade de tempo alocada em cada sessão do estudo e em cada tarefa a ser realizada (dimensão

Tempo), monitorar estratégias aplicadas, avaliar periodicamente se elas seguem adequadas para a situação (dimensão Método e Comportamento), autoavaliar os resultados e realizar adaptações para o próximo ciclo de aprendizagem (dimensão Comportamento) (Dos Santos; Gerling, 2011; Dos Santos Silva; Marinho; Fiorini, 2023; Miksza, 2012; Silva; Fiorini, 2021).

Os resultados dos estudos que investigaram os processos de autorregulação organizados nas dimensões psicológicas da aprendizagem (artigos 2 e 3) destacam a interdependência e a simultaneidade das dimensões. Logo, as estratégias de aprendizagem devem ser selecionadas considerando essa interdependência, pois afetarão mais de uma dimensão ao mesmo tempo.

Reunindo os resultados dos quatro estudos, podemos confirmar parcialmente a nossa hipótese, que estimou que a população estudada demonstraria comportamentos análogos aos processos de autorregulação relatados na literatura. Os músicos avançados demonstram comportamentos que auxiliam na autorregulação da aprendizagem, otimizando a prática diária e construindo a *performance* musical. Entretanto, os dados obtidos por diferentes desenhos de pesquisa apontam para o fato de que os músicos avançados reportam apoiar-se majoritariamente em estratégias de ensaio, como a repetição. Estratégias metacognitivas como o uso de diário de prática, o *video feedback* e a autoinstrução são relatados com menor frequência. O estabelecimento de objetivos também se destacou como processo pouco explorado pela população investigada nos três estudos empíricos, que mostraram haver divergências na concepção sobre os objetivos de prática. É válido mencionar que nossos resultados também sugerem que os processos autorregulatórios mudam de perspectiva durante os anos de formação e, posteriormente, durante a atuação profissional do músico. Ao serem comparados com músicos profissionais, estudantes avançados alcançaram pontuações mais baixas nos fatores metacognitivos da autorregulação e pontuações mais altas nos fatores externos da autorregulação.

6. CONCLUSÃO

Ao longo de aproximadamente duas décadas, a literatura da área apresentou robustez na condução das pesquisas e no desenvolvimento de instrumentos de medida de processos autorregulatórios, observados por meio da convergência dos resultados de considerável parte dos estudos analisados em nossa pesquisa. Entretanto, a população estudada segue demonstrando as mesmas lacunas em sua prática diária. Esse fato convida-nos à reflexão sobre uma possível distância entre a produção científica da área e as possíveis aplicações educacionais.

A discussão sobre os resultados desta pesquisa revela que, apesar de a maioria dos artigos mencionar o papel do professor de música na promoção de estratégias de aprendizagem, poucos estudos levantados na revisão sistemática investigaram os processos autorregulatórios envolvidos na prática musical desses educadores em formação.

Futuras pesquisas podem elaborar intervenções direcionadas a educadores musicais em formação, abordando os processos de autorregulação em sua prática instrumental e também em sua atuação como professores de música. Para que possamos obter resultados distintos nas próximas décadas de pesquisa, é necessário investir na formação de professores, equipando-os com estratégias de aprendizagem e com conhecimento teórico sobre os processos autorregulatórios e sobre como transmiti-los aos seus alunos.

Os dados obtidos podem incentivar as instituições de ensino superior a investir na formação de professores de música. Para além dos alunos do curso de Educação Musical, os alunos de bacharelado em instrumento também podem ser incentivados a exercer a docência durante a sua formação profissional. Esse exercício poderia acontecer por meio da Extensão Universitária, como já acontece em algumas instituições, nas quais a Universidade mantém uma parceria com escolas de música públicas, mediando a relação entre o conhecimento produzido na Universidade e a comunidade em geral.

A formação dos músicos poderá beneficiar-se de pesquisas futuras que acompanhem os participantes após as intervenções, para identificar quais comportamentos autorregulatórios transmitidos pelas intervenções mantêm-se ao longo do tempo. Logo, é importante que instrumentos de medida de processos autorregulatórios continuem a ser desenvolvidos para apoiar a coleta de dados antes das intervenções e, posteriormente, no momento do *follow-up*, em estudos longitudinais.

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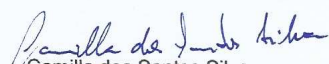
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Data: 2023.10.13 17:57:43+01'00'

8.3. Declaração de submissão artigo 1

06/10/2023, 11:33

Gmail - Musicae Scientiae MS-23-0173



Camilla Silva <silvacamilla89@gmail.com>

Musicae Scientiae MS-23-0173

Musicae Scientiae <onbehalf@manuscriptcentral.com>
 Responder a: jane.ginsborg@mcm.ac.uk
 Para: silvacamilla89@gmail.com, helena.marinho@ua.pt

6 de outubro de 2023 às 11:29

06-Oct-2023

Dear Miss dos Santos Silva:

Your manuscript entitled "Self-Regulated Learning Processes of Advanced Musicians: A PRISMA Review" has been successfully submitted online and is presently being given full consideration for publication in Musicae Scientiae.

Your manuscript ID is MS-23-0173.

You have listed the following individuals as authors of this manuscript:
 dos Santos Silva, Camilla; Marinho, Helena

Please mention the above manuscript ID in all future correspondence or when calling the office for questions. If there are any changes in your street address or e-mail address, please log in to ScholarOne Manuscripts at <https://mc.manuscriptcentral.com/msx> and edit your user information as appropriate.

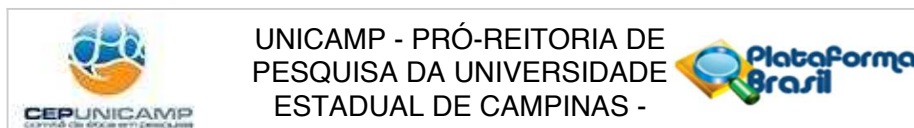
You can also view the status of your manuscript at any time by checking your Author Center after logging in to <https://mc.manuscriptcentral.com/msx>.

As part of our commitment to ensuring an ethical, transparent and fair peer review process Sage is a supporting member of ORCID, the Open Researcher and Contributor ID (<https://orcid.org/>). We encourage all authors and co-authors to use ORCID iDs during the peer review process. If you have not already logged in to your account on this journal's ScholarOne Manuscripts submission site in order to update your account information and provide your ORCID identifier, we recommend that you do so at this time by logging in and editing your account information. In the event that your manuscript is accepted, only ORCID iDs validated within your account prior to acceptance will be considered for publication alongside your name in the published paper as we cannot add ORCID iDs during the Production steps. If you do not already have an ORCID iD you may login to your ScholarOne account to create your unique identifier and automatically add it to your profile.

Thank you for submitting your manuscript to Musicae Scientiae.

Sincerely,
 Professor Jane Ginsborg
 Musicae Scientiae
jane.ginsborg@mcm.ac.uk

8.5. Pareceres do CEP



PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: Estratégias de aprendizagem autorregulada envolvidas na preparação de repertório avançado de violão: um estudo de caso à luz da Teoria Social Cognitiva

Pesquisador: CAMILLA DOS SANTOS SILVA

Área Temática:

Versão: 2

CAAE: 09319219.8.0000.8142

Instituição Proponente: Instituto de Artes

Patrocinador Principal: Financiamento Próprio

DADOS DO PARECER

Número do Parecer: 3.282.718

Apresentação do Projeto:

INTRODUÇÃO

Área de grande expansão no âmbito acadêmico, podemos apresentar a pesquisa científica em Música no Brasil em quatro grandes eixos: Composição, Performance, Musicologia/Etnomusicologia, e Educação Musical. Dentro destes eixos, temos as seguintes subáreas, determinadas pelo maior congresso de pesquisa em música do país (ANPPOM): Educação Musical, Composição, Etnomusicologia, Música e Interfaces, Música Popular, Sonologia, Teoria e Análise Musical, Musicologia e Estética, Performance. No congresso de 2017, as subáreas que mais apresentaram trabalhos foram Performance, com 47 trabalhos aprovados, e Educação Musical, com 42 trabalhos. Essas duas áreas seguem interligadas, uma vez que a maneira como os indivíduos adquirem conhecimento tem sido assunto de investigações que visam desenvolver práticas que otimizem a performance musical. A crescente literatura na área tem abordado principalmente os aspectos cognitivos, metacognitivos, motivacionais e afetivos que envolvem a aprendizagem, o ensino e a performance musical. Uma maneira de contribuir para a expansão da pesquisa é investigar as direções oferecidas pelos autores para novas pesquisas, bem como buscar soluções para as eventuais limitações existentes. A prática musical não conta somente com a questão do tempo empregado no estudo diário, mas com a eficiência da prática e na habilidade do

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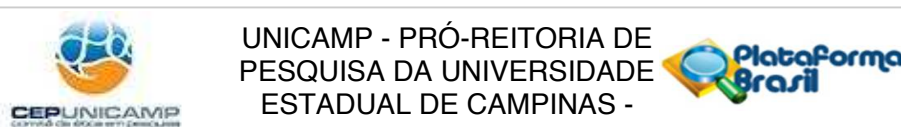
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Continuação do Parecer: 3.282.718

músico em controlar as influências pessoais, ambientais e comportamentais. Os pesquisadores McPherson e Zimmerman (2002) demonstraram como o modelo cíclico desenvolvido pelo último (1990, 1998, 2000) pode ser aplicado no contexto musical e oferecer uma abordagem abrangente acerca dos processos envolvidos no estudo de música. Além disso, tal modelo permite conhecer a maneira pela qual os músicos iniciantes adquirem suas habilidades que levam ao controle de seu aprendizado (MCPHERSON & ZIMMERMAN, 2001). O modelo desenvolvido por Zimmerman inclui três fases: Antecipação, Performance e Autorreflexão. Relacionando cada fase com o aprendizado de música, temos: Antecipação: o estabelecimento de objetivos consiste em organizar a tarefa e dividi-la em seções menores que podem ser trabalhadas de maneira mais sintetizada, como escolher exercícios de técnica necessários para dominar um repertório mais complexo. Os objetivos secundários podem variar frequentemente durante a prática, porque algumas dificuldades identificadas são temporárias, como tocar uma nota errada, problemas com traslados mecânicos dentre outros, assim, as estratégias utilizadas para esses problemas dão lugar a outras destinadas a cumprir outros objetivos (NIELSEN, 2001). Performance: a fase de performance é formada pelos processos de autocontrole e auto-observação. O primeiro é o processo pelo qual o músico dirige sua atenção àquilo que está tocando e à sua execução. Dessa maneira, pode otimizar seus esforços através da autoinstrução, imagens mentais, concentração da atenção e estratégias de aprendizagem. A autoinstrução pode ser representada desde incentivos por auto-discurso (como "continue estudando" ou "sou capaz de tocar este repertório em público") e até mesmo por estratégias que auxiliam a aprendizagem e a performance ao diminuir a peça às suas partes mais difíceis e depois reorganizá-la (NIELSEN, 2001), como cantar a melodia da peça e realizar autocorreções referentes à dinâmica, à rítmica ou ao fraseado (MCPHERSON & ZIMMERMAN, 2001). As estratégias usadas para o cumprimento da tarefa (aprender uma música nova, por exemplo) podem se diversificar de acordo com a natureza desta, como olhar para a peça, digitar silenciosamente, cantar a melodia, repetir um compasso, recomeçar um compasso, repetir um grupo de notas mais lentamente, usar o metrônomo, entre outros. (LEON-GUERRERO, 2008). Isto também auxilia o músico a concentrar sua atenção na tarefa e na maneira como a realiza. O segundo processo que compõe a fase de performance diz respeito à auto-observação. Nesse processo, o aluno deve monitorar se está ou não tocando de acordo com seus objetivos e usar tal informação para alterar seu desempenho conforme necessário (NIELSEN, 2001). Uma maneira de estudantes de música aplicarem o processo de autoobservação é gravarem-se tocando. Essa técnica é muito utilizada nos dias atuais, em que os recursos tecnológicos tornaram-se acessíveis. Desta maneira, além de identificar seções da música que necessitam de

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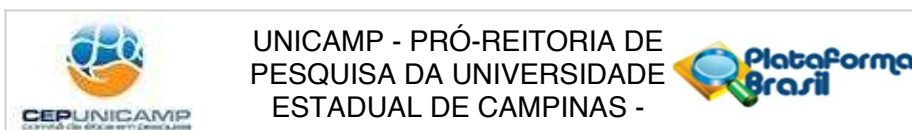
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mais trabalho, os estudantes podem avaliar o quanto melhoraram desde a última gravação, testar mudanças interpretativas como dinâmica, tempo, timbre, etc. Autorreflexão: De acordo com Zimmerman (2000), a autorreflexão possui quatro etapas, sendo elas autoavaliação, atribuições causais, autossatisfação e conclusões adaptativas. A autorreflexão inicia-se com o processo de autoavaliação, no qual o músico pode julgar o feedback ou uma avaliação escrita fornecida por seu professor ou regente e comparar a própria performance com a dos colegas, a partir de seus padrões pessoais. Posteriormente, o aluno sofre autorreações como satisfação ou insatisfação relativas à sua performance. As autorreações influenciam na fase inicial de antecipação, porque podem direcionar o aluno a planejar melhor seu estudo, definir objetivos passíveis de serem cumpridos e fortalecer suas crenças de autoeficácia. Será então a partir deste modelo que serão desenvolvidas as bases teóricas deste projeto, pois acredito que as frentes de pesquisa abaixo discriminadas (levantamento bibliográfico, pesquisa descritivo-correlacional; prática do violão na elaboração dos repertórios e autoetnografia; intervenção e ensino do instrumento por meio dos laboratórios e estágio de pesquisa no exterior) contribuirão com a literatura nacional na área, que ainda se encontra de maneira mais expressiva no âmbito internacional. A pesquisa bibliográfica permitirá conhecer e trabalhar sobre as lacunas científicas existentes na produção atual da área, avançando na discussão teórica e metodológica deste âmbito de pesquisa. O estudo descritivo-correlacional poderá fornecer dados estatísticos sobre a situação do emprego de estratégias de aprendizagem autorregulada na prática musical, em estudantes e profissionais. Estas informações complementarão os dados qualitativos da pesquisa de grupo focal para avaliar a necessidade de um trabalho de intervenção que promova a Autorregulação da Aprendizagem na prática de violão da graduação, com posterior avaliação dos resultados. Somada a estas frentes, esta pesquisa também explorará o exercício da autorreflexão, que poderá complementar ou contrapor os dados obtidos de maneira externa.

HIPÓTESE

1. Realização de um material autoetnográfico que trate da preparação de prática e performance musical, englobando a preparação, o processo e a apresentação da performance artística, em diálogo com a Teoria Social Cognitiva.
2. A hipótese é de que o estudo descritivo-correlacional destacará diferenças de correlação entre as variáveis “tempo de estudo do instrumento” e “uso de estratégias autorreguladas”, e estes dados contribuirão para a elaboração da fase de intervenção.

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Continuação do Parecer: 3.282.718

3. A hipótese é de que a intervenção auxiliará os alunos a selecionar seus objetivos a curto prazo (sessões de estudo diário), empregar estratégias para realizar cada tarefa, monitorar seu comportamento e avaliar os resultados. Espera-se que, ao final do período de intervenção, os alunos consigam otimizar seu tempo de estudo diário e trabalhar sob seu repertório semestral de maneira mais eficiente.

METODOLOGIA PROPOSTA

1) Revisão de Literatura 2) Pesquisa descritivo-correlacional e Grupo Focal 3) Intervenção: Laboratório de Autorregulação da Aprendizagem e Violão 4) Frente Autorreflexiva: Autoetnografia

Objetivo da Pesquisa:

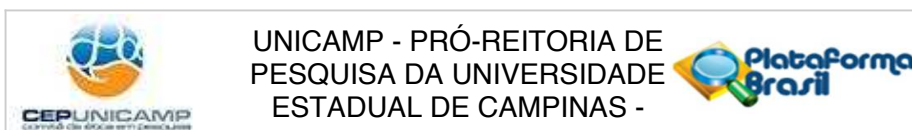
Objetivo Primário:

Investigar, a partir da Teoria Social Cognitiva e da Autorregulação da Aprendizagem, os processos cognitivos e metacognitivos envolvidos na elaboração e apresentação de dois repertórios de violão, do ponto de vista do performer-pesquisador.

Objetivo Secundário:

1. Desenvolver e apresentar dois repertórios de violão solo, utilizando a preparação, o processo e a apresentação para, através da aplicação do modelo de Zimmerman de Autorregulação da Aprendizagem (1990, 1998, 2000), coletar dados sobre estratégias de autorregulação e metacognição da prática e da performance musical. Esta frente da pesquisa será complementada pelo estudo da metodologia autoetnográfica aplicada à pesquisa em performance musical (BENNETTI, 2017). 2. Realizar uma pesquisa descritivo correlacional, aplicando o questionário de Araújo (2015), visando obter dados sobre o uso de estratégias de aprendizagem em instrumentistas estudantes e profissionais, para elaborar a pesquisa intervencional. 3. Estimular a reflexão sobre o uso de estratégias de aprendizagem autorregulada na prática diária de violão e no momento da performance através do pesquisa intervencional Laboratório de Autorregulação da Aprendizagem na performance musical com alunos de graduação em violão da Unicamp.

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Continuação do Parecer: 3.282.718

Avaliação dos Riscos e Benefícios:

Riscos:

Segundo a pesquisadora, esta pesquisa não apresenta riscos previsíveis.

Benefícios:

A pesquisadora afirma que “o benefício da participação nesta pesquisa está em praticar a seleção dos objetivos a curto prazo (sessões de estudo diário), empregar estratégias para realizar cada tarefa, monitorar seu comportamento e avaliar os resultados. Espera-se que, ao final do período de intervenção, o participante consiga otimizar seu tempo de estudo diário e trabalhar sob o repertório semestral de maneira mais eficiente”.

Comentários e Considerações sobre a Pesquisa:

Este protocolo se refere ao Projeto de Pesquisa de Doutorado intitulado “Estratégias de aprendizagem autorregulada envolvidas na preparação de repertório avançado de violão – um estudo de caso à luz da Teoria Social Cognitiva”, cuja pesquisadora responsável é a doutoranda Camilla dos Santos Silva sob a orientação do Profº. Dr. Carlos Fernando Fiorini, enquadrado na Grande Área 8: Linguística, Letras e Artes e tendo como instituição proponente o Instituto de Artes da UNICAMP. Segundo as Informações Básicas do Projeto, a pesquisa tem orçamento estimado em R\$103.400,00 (Cento e três mil e quatrocentos reais) referente a bolsa CAPES e o Cronograma apresentado contempla a coleta de dados entre 01/08/2019 e 01/07/2020, envolvendo 20 participantes.

Considerações sobre os Termos de apresentação obrigatória:

Foram analisados os seguintes documentos de apresentação obrigatória:

PB_INFORMAÇÕES_BÁSICAS_DO_PROJETO_1111439.pdf – Adequado.

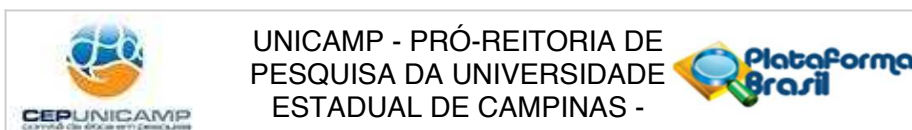
cartarespostacamillasilva.pdf – Adequada.

tclefocusgroupcorrigido.pdf – Adequado.

tcleintervenciaocorrigido.pdf – Adequado.

projetocepcamillasilvacorrigido.pdf – Adequado.

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Continuação do Parecer: 3.282.718

Recomendações:

O cronograma, na Plataforma Brasil, segue indicando início da pesquisa em 24/01/2019. Todas as informações DEVEM ser iguais em todos os documentos nos quais são informados.

Recomenda-se adequação antes de iniciar a pesquisa

Conclusões ou Pendências e Lista de Inadequações:

O protocolo não apresenta óbices éticos mas é necessário adequar o cronograma na Plataforma Brasil

Qualquer dado eventualmente coletado em data anterior a esta aprovação deve ser descartado.

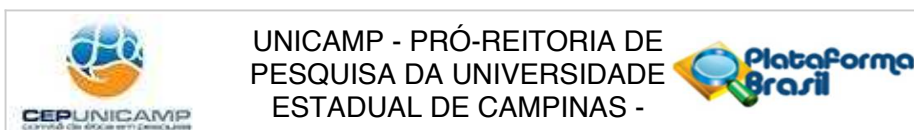
Considerações Finais a critério do CEP:

1. Vale lembrar que as pesquisas só podem ser iniciadas a partir da aprovação da pesquisa. Os cronogramas de geração/coleta de dados devem acompanhar os relatórios parcial e final de pesquisa;
2. Cabe enfatizar que, segundo a Resolução CNS 510/16, Art.28 Inciso IV, o pesquisador é responsável por "(...) manter os dados da pesquisa em arquivo, físico ou digital, sob sua guarda e responsabilidade, por um período mínimo de 5 (cinco) anos após o término da pesquisa;
3. O participante da pesquisa tem a liberdade de recusar-se a participar ou de retirar seu consentimento em qualquer fase da pesquisa, sem penalização alguma e sem prejuízo ao seu cuidado (quando aplicável);
4. Eventuais modificações ou emendas ao protocolo devem ser apresentadas ao CEP de forma clara e sucinta, identificando a parte do protocolo a ser modificada e suas justificativas e aguardando a aprovação do CEP para continuidade da pesquisa;
5. Relatórios parciais e final devem ser apresentados ao CEP, inicialmente seis meses após a data deste parecer de aprovação e ao término do estudo;
6. Caso a pesquisa seja realizada ou dependa de dados a serem observados/coletados em uma instituição (ex. empresas, escolas, ONGs, entre outros), essa aprovação não dispensa a autorização dos responsáveis. Caso não conste no protocolo no momento desta aprovação, estas autorizações devem ser submetidas ao CEP em forma de notificação antes do início da pesquisa.

Este parecer foi elaborado baseado nos documentos abaixo relacionados:

Tipo Documento	Arquivo	Postagem	Autor	Situação
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Continuação do Parecer: 3.282.718

Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_DO_PROJETO_1111439.pdf	28/03/2019 22:07:51		Aceito
Outros	cartarespostacamillasilva.pdf	28/03/2019 22:07:14	CAMILLA DOS SANTOS SILVA	Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	tclefocugroupcorrigido.pdf	28/03/2019 22:06:09	CAMILLA DOS SANTOS SILVA	Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	tcleintervencocorrigido.pdf	28/03/2019 22:05:44	CAMILLA DOS SANTOS SILVA	Aceito
Projeto Detalhado / Brochura Investigador	projetocepcamillasilvacorrigido.pdf	28/03/2019 22:04:59	CAMILLA DOS SANTOS SILVA	Aceito
Outros	atestadomatricula6.pdf	14/02/2019 12:14:30	CAMILLA DOS SANTOS SILVA	Aceito
Folha de Rosto	scan0027.pdf	29/01/2019 19:21:17	CAMILLA DOS SANTOS SILVA	Aceito

Situação do Parecer:

Aprovado

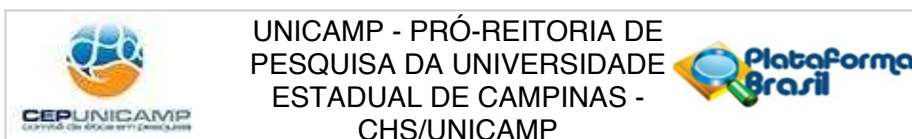
Necessita Apreciação da CONEP:

Não

CAMPINAS, 24 de Abril de 2019

Assinado por:
Thiago Motta Sampaio
(Coordenador(a))

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PARECER CONSUBSTANCIADO DO CEP

DADOS DA EMENDA

Título da Pesquisa: Estratégias de aprendizagem autorregulada envolvidas na preparação de repertório avançado de violão: um estudo de caso à luz da Teoria Social Cognitiva

Pesquisador: CAMILLA DOS SANTOS SILVA

Área Temática:

Versão: 3

CAAE: 09319219.8.0000.8142

Instituição Proponente: Instituto de Artes

Patrocinador Principal: Financiamento Próprio

DADOS DO PARECER

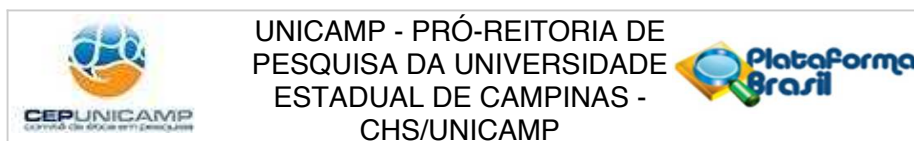
Número do Parecer: 4.417.942

Apresentação do Projeto:

INFORMAÇÕES FORNECIDAS PELO PESQUISADOR VIA PLATAFORMA BRASIL

A produção recente acerca da performance musical avançada tem voltado sua atenção para os processos envolvidos na prática musical. Esta atividade não conta somente com a questão do tempo empregado no estudo diário, mas na eficiência da prática e na habilidade do músico em controlar as influências pessoais, ambientais e comportamentais. Este projeto de doutorado tem como objetivo investigar os processos metacognitivos utilizados na performance avançada de violão. À luz da Teoria Social Cognitiva no construto da Autorregulação da aprendizagem, esta pesquisa trabalhará nas frentes de pesquisa bibliográfica, pesquisa descritiva correlacional, grupo focal e elaboração de dois recitais de violão para coleta de dados do ponto de vista do pesquisador-performer por meio do uso metodológico da autoetnografia. A partir do modelo de intervenção de ARA desenvolvido durante a pesquisa de mestrado de 2016, serão realizados laboratórios com os alunos do curso de Bacharelado em Violão da UNICAMP visando estimular a reflexão sobre o uso de estratégias de aprendizagem autorregulada na prática diária de violão e no momento da. Desta maneira, poderemos nos instrumentalizar adequadamente, dialogando com os requisitos da pesquisa atual.

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Continuação do Parecer: 4.417.942

Hipótese:

1. Realização de um material autoetnográfico que trate da preparação de prática e performance musical, englobando a preparação, o processo e a apresentação da performance artística, em diálogo com a Teoria Social Cognitiva.
2. A hipótese é de que o estudo descritivo-correlacional destacará diferenças de correlação entre as variáveis “tempo de estudo do instrumento” e “uso de estratégias autorreguladas”.
3. A hipótese é de que a intervenção auxiliará os alunos a selecionar seus objetivos a curto prazo (sessões de estudo diário), empregar estratégias para realizar cada tarefa, monitorar seu comportamento e avaliar os resultados. Espera-se que, ao final do período de intervenção, os alunos consigam otimizar seu tempo de estudo diário e trabalhar sob seu repertório semestral de maneira mais eficiente.

Metodologia Proposta:

- 1) Revisão de Literatura
- 2) Pesquisa descritivo-correlacional e Grupo Focal
- 3) Intervenção: Laboratório de Autorregulação da Aprendizagem e Violão
- 4) Frente Autorreflexiva: Autoetnografia

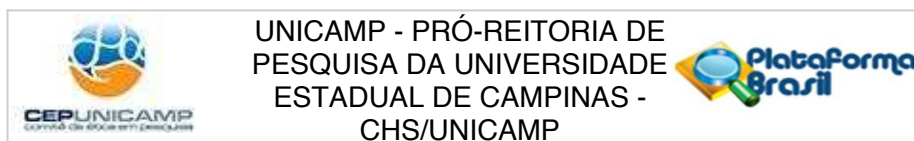
Critério de Inclusão:

População da fase de estudo descritivo-correlacional: A delimitação será de caráter acadêmico, ou seja: buscaremos como voluntários músicos profissionais e estudantes para fornecerem dados sobre sua ideia de prática e estratégias de estudo de instrumento musical. Não são relevantes e não serão catalogadas características como tamanho, faixa etária, sexo, cor/raca (classificação do IBGE) e etnia, orientação sexual e identidade de gênero, classes e grupos sociais. O instrumento (questionário) encontra-se discriminado na seção Anexos. Na fase de intervenção a delimitação também terá caráter acadêmico: buscaremos voluntários alunos de graduação do Departamento de Música do Instituto de Artes da Unicamp que estejam no primeiro e alunos que estejam no último semestre de curso. Os voluntários fazem parte de grupo vulnerável, por serem estudantes. A pesquisa deve ser feita com estudantes (vulneráveis) pois necessita de músicos em fase de estudo (graduação).

Objetivo da Pesquisa:

INFORMAÇÕES FORNECIDAS PELO PESQUISADOR VIA PLATAFORMA BRASIL

Endereço: Av. Bertrand Russell, 801, 2º Piso, Bloco C, Sala 5, Campinas-SP, Brasil.
Bairro: Cidade Universitária "Zeferino Vaz" **CEP:** 13.083-865
UF: SP **Município:** CAMPINAS
Telefone: (19)3521-6836 **E-mail:** cepchs@unicamp.br



Continuação do Parecer: 4.417.942

Investigar, a partir da Teoria Social Cognitiva e da Autorregulação da Aprendizagem, os processos cognitivos e metacognitivos envolvidos na elaboração e apresentação de dois repertórios de violão, do ponto de vista do performer-pesquisador.

Avaliação dos Riscos e Benefícios:

Segundo a pesquisadora "Esta pesquisa não apresenta riscos previsíveis."

Quanto aos benefícios, é indicado que "O benefício da participação nesta pesquisa está em praticar a seleção dos objetivos a curto prazo (sessões de estudo diário), empregar estratégias para realizar cada tarefa, monitorar seu comportamento e avaliar os resultados. Espera-se que, ao final do período de intervenção, o participante consiga otimizar seu tempo de estudo diário e trabalhar sob o repertório semestral de maneira mais eficiente."

Comentários e Considerações sobre a Pesquisa:

Emenda a protocolo já aprovado neste CEP.

A justificativa apresentada é:

"Inclusão de TCLE para aplicação de questionário on-line anônimo em adultos e sem obtenção de dados pessoais. O estudo e o questionário já se encontram aprovados no CAAE acima mencionado, desde abril de 2019, somente há a adição do TCLE."

Considerações sobre os Termos de apresentação obrigatória:

ver "Conclusões ou Pendências e Lista de Inadequações"

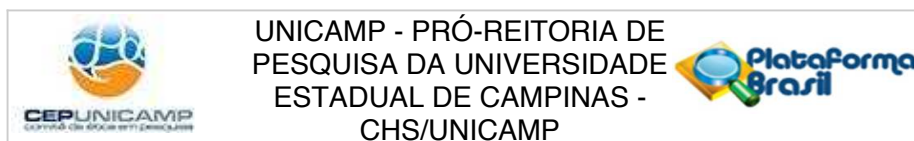
Conclusões ou Pendências e Lista de Inadequações:

A emenda foi considerada aprovada neste CEP e, caso não tenha autorizações institucionais pendentes ou centros co-participantes, o projeto pode ser continuado.

Não estão sob o escopo deste parecer

- Eventuais alterações documentais realizadas sem aviso prévio e/ou não solicitadas pelo CEP em forma de pendência ou de recomendação;
- Caso, eventualmente, os dados sejam coletados com autorizações institucionais pendentes (se necessário);
- Caso, eventualmente, os dados sejam coletados sem a aprovação/autorização do centro co-participante (se necessário).
- Relatório final deve ser apresentado ao CEP via notificação ao término do estudo.

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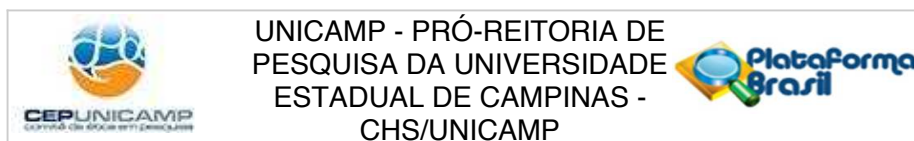
Continuação do Parecer: 4.417.942

Considerações Finais a critério do CEP:

- Vale lembrar que a interação com os participantes de pesquisa só pode ser iniciada a partir da aprovação desse protocolo no CEP. Os cronogramas de geração/coleta de dados deve acompanhar o relatório final de pesquisa
- Cabe enfatizar que, segundo a Resolução CNS 510/16, Art.28 Inciso IV, o pesquisador é responsável por "(...) manter os dados da pesquisa em arquivo, físico ou digital, sob sua guarda e responsabilidade, por um período mínimo de 5 (cinco) anos após o término da pesquisa".
- O participante da pesquisa tem a liberdade de recusar-se a participar ou de retirar seu consentimento em qualquer fase da pesquisa, sem penalização alguma e sem prejuízo ao seu cuidado. (Res.510/16, Cap.III, Art.9, inciso II)
- A responsabilidade de obtenção de registro de consentimento, bem como o de sua guarda, é de inteira responsabilidade da equipe de pesquisa. Tais documentos podem ser solicitados a qualquer momento pelo sistema CEP-CONEP para fins de auditoria, bem como servem de proteção para os próprios pesquisadores em caso de eventuais denúncias por parte dos participantes.
- Eventuais modificações ou emendas ao protocolo devem ser apresentadas ao CEP de forma clara e sucinta, identificando a parte do protocolo a ser modificada e suas justificativas e aguardando a aprovação do CEP para continuidade da pesquisa.
- Relatório final deve ser apresentado ao CEP via notificação ao término do estudo.
- Caso a pesquisa seja realizada ou dependa de dados a serem observados/coletados em uma instituição (ex. empresas, escolas, ONGs, entre outros), essa aprovação não dispensa a autorização dos responsáveis. Caso não conste no protocolo no momento desta aprovação, estas autorizações devem ser submetidas ao CEP em forma de notificação antes do início da pesquisa.

Este parecer foi elaborado baseado nos documentos abaixo relacionados:

Endereço: Av. Betrand Russell, 801, 2º Piso, Bloco C, Sala 5, Campinas-SP, Brasil.
Bairro: Cidade Universitária "Zeferino Vaz" **CEP:** 13.083-865
UF: SP **Município:** CAMPINAS
Telefone: (19)3521-6836 **E-mail:** cepchs@unicamp.br



Continuação do Parecer: 4.417.942

Tipo Documento	Arquivo	Postagem	Autor	Situação
Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_1647443_E1.pdf	18/11/2020 15:11:42		Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	TCLParaquestionarioonlinepdf.pdf	18/11/2020 15:03:56	CAMILLA DOS SANTOS SILVA	Aceito
Outros	cartarespostacamillasilva.pdf	28/03/2019 22:07:14	CAMILLA DOS SANTOS SILVA	Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	tclefocugroupcorrigido.pdf	28/03/2019 22:06:09	CAMILLA DOS SANTOS SILVA	Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	tcleintervencacorreigido.pdf	28/03/2019 22:05:44	CAMILLA DOS SANTOS SILVA	Aceito
Projeto Detalhado / Brochura Investigador	projetocepcamillasilvacorreigido.pdf	28/03/2019 22:04:59	CAMILLA DOS SANTOS SILVA	Aceito
Outros	atestadomatricula6.pdf	14/02/2019 12:14:30	CAMILLA DOS SANTOS SILVA	Aceito
Folha de Rosto	scan0027.pdf	29/01/2019 19:21:17	CAMILLA DOS SANTOS SILVA	Aceito

Situação do Parecer:

Aprovado

Necessita Apreciação da CONEP:

Não

CAMPINAS, 24 de Novembro de 2020

Assinado por:
Thiago Motta Sampaio
(Coordenador(a))

Endereço: Av. Betrand Russell, 801, 2º Piso, Bloco C, Sala 5, Campinas-SP, Brasil.
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8.6. TCLE artigo grupo focal

TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO

Estratégias de aprendizagem autorregulada envolvidas na preparação de repertório avançado de violão – um estudo de caso à luz da Teoria Social Cognitiva

Camilla dos Santos Silva

Número do CAAE: 09319219.8.0000.8142

Você está sendo convidado a participar como voluntário de uma pesquisa. Este documento, chamado Termo de Consentimento Livre e Esclarecido, visa assegurar seus direitos como participante e é elaborado em duas vias, uma que deverá ficar com você e outra com o pesquisador.

Por favor, leia com atenção e calma, aproveitando para esclarecer suas dúvidas. Se houver perguntas antes ou mesmo depois de assiná-lo, você poderá esclarecê-las com o pesquisador. Se preferir, pode levar este Termo para casa e consultar seus familiares ou outras pessoas antes de decidir participar. Não haverá nenhum tipo de penalização ou prejuízo se você não aceitar participar ou retirar sua autorização em qualquer momento.

Justificativa e objetivos:

Este projeto de doutorado tem como objetivo investigar os processos de aprendizagem utilizados na performance avançada de violão. Este trabalho colaborará com o debate teórico, metodológico e conceitual para o desenvolvimento da pesquisa em performance e cognição musical, em especial do ensino, aprendizagem e performance de violão no Brasil.

Procedimentos:

Participando do estudo você está sendo convidado a: participar de um grupo de discussão sobre estratégias usadas para aprender e estudar um novo repertório de violão. Esta atividade será gravada em vídeo para facilitar a transcrição do conteúdo e análise.

Observações:

- Esta atividade acontecerá em uma (1) sessão, de aproximadamente 60 – 80 minutos, a ser realizada no Departamento de Música do Instituto de Artes da UNICAMP.
- Sua identidade não será divulgada, e suas declarações e opiniões serão divulgadas de maneira anônima.
- Os arquivos de vídeo serão armazenados em computador pelo pesquisador pelo período de 5 anos após o final da pesquisa, de acordo com a Res. CNS 510/16

Desconfortos e riscos:

Esta pesquisa não apresenta riscos previsíveis.

Benefícios:

O benefício da participação nesta pesquisa está em refletir e compartilhar pensamentos e opiniões acerca das estratégias usadas na prática diária e na performance de violão.

Acompanhamento e assistência:

A qualquer momento, antes, durante ou até o término da pesquisa, os participantes poderão entrar em contato com os pesquisadores para esclarecimentos e assistência sobre qualquer aspecto da pesquisa em danos decorrentes da pesquisa.

Rubrica do pesquisador: _____

Rubrica do participante: _____

Sigilo e privacidade:

Você tem a garantia de que sua identidade será mantida em sigilo e nenhuma informação será dada a outras pessoas que não façam parte da equipe de pesquisadores. Na divulgação dos resultados desse estudo, seu nome não será citado.

Ressarcimento e indenização:

Esta atividade não oferece ressarcimento material, porque não são previstos gastos materiais a partir de sua participação. Não será oferecido ressarcimento de deslocamento porque a pesquisa acontecerá no Instituto onde você está matriculado como aluno de graduação (Instituto de Artes – UNICAMP). Você terá a garantia ao direito a indenização diante de eventuais gastos materiais ou danos decorrentes da pesquisa.

Contato:

Em caso de dúvidas sobre a pesquisa, você poderá entrar em contato com os pesquisadores:

Camilla dos Santos Silva: Rua Elis Regina, 50. Telefone (19) 982 983 191. E-mail: silvacamilla89@gmail.com.

Carlos Fiorini: Rua Elis Regina, 50. Telefone (19) 981 232 300. E-mail: fiorinic@iar.unicamp.br.

Em caso de denúncias ou reclamações sobre sua participação e sobre questões éticas do estudo, você poderá entrar em contato com a secretaria do Comitê de Ética em Pesquisa em Ciências Humanas e Sociais (CEP-CHS) da UNICAMP das 08h30 às 11h30 e das 13h00 às 17h00 na Rua Bertrand Russell, 801, Bloco C, 2º piso, sala 05, CEP 13083-865, Campinas – SP; telefone (19) 3521-6836; e-mail: cepchs@unicamp.br.

O Comitê de Ética em Pesquisa (CEP).

O papel do CEP é avaliar e acompanhar os aspectos éticos de todas as pesquisas envolvendo seres humanos. A Comissão Nacional de Ética em Pesquisa (CONEP), tem por objetivo desenvolver a regulamentação sobre proteção dos seres humanos envolvidos nas pesquisas. Desempenha um papel coordenador da rede de Comitês de Ética em Pesquisa (CEPs) das instituições, além de assumir a função de órgão consultor na área de ética em pesquisas

Consentimento livre e esclarecido:

Após ter recebido esclarecimentos sobre a natureza da pesquisa, seus objetivos, métodos, benefícios previstos, potenciais riscos e o incômodo que esta possa acarretar, aceito participar e declaro estar recebendo uma via original deste documento assinada pelo pesquisador e por mim, tendo todas as folhas por nós rubricadas:

Nome do (a) participante: _____

Contato telefônico: _____

e-mail (opcional): _____

_____ Data: ____/____/____.
(Assinatura do participante ou nome e assinatura do seu RESPONSÁVEL LEGAL)

Responsabilidade do Pesquisador:

Asseguro ter cumprido as exigências da resolução 510/2016 CNS/MS e complementares na elaboração do protocolo e na obtenção deste Termo de Consentimento Livre e Esclarecido. Asseguro, também, ter explicado e fornecido uma via deste documento ao participante. Informo que

Rubrica do pesquisador: _____

Rubrica do participante: _____

o estudo foi aprovado pelo CEP perante o qual o projeto foi apresentado e pela CONEP, quando pertinente. Comprometo-me a utilizar o material e os dados obtidos nesta pesquisa exclusivamente para as finalidades previstas neste documento ou conforme o consentimento dado pelo participante.

_____ Data: ____/____/____.
(Assinatura do pesquisador)

Rubrica do pesquisador: _____

Rubrica do participante: _____

8.7. TCLE artigo descritivo correlacional

TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO

Estratégias de aprendizagem autorregulada envolvidas na preparação de repertório avançado de violão – um estudo de caso à luz da Teoria Social Cognitiva

Camilla dos Santos Silva

Número do CAAE: 09319219.8.0000.8142

Você está sendo convidado a participar como voluntário de uma pesquisa. Este documento, chamado Termo de Consentimento Livre e Esclarecido, visa assegurar seus direitos como participante e é elaborado em duas vias, uma que deverá ficar com você e outra com o pesquisador.

Por favor, leia com atenção e calma, aproveitando para esclarecer suas dúvidas. Se houver perguntas antes ou mesmo depois de assiná-lo, você poderá esclarecê-las com o pesquisador. Se preferir, pode levar este Termo para casa e consultar seus familiares ou outras pessoas antes de decidir participar. Não haverá nenhum tipo de penalização ou prejuízo se você não aceitar participar ou retirar sua autorização em qualquer momento.

Justificativa e objetivos:

Este projeto de doutorado tem como objetivo investigar os processos de aprendizagem utilizados na performance avançada de instrumentos musicais. Este trabalho colaborará com o debate teórico, metodológico e conceitual para o desenvolvimento da pesquisa em performance e cognição musical, em especial do ensino, aprendizagem e performance de instrumentos musicais no Brasil.

Procedimentos:

Participando do estudo você está sendo convidado a: responder um questionário sobre atitudes e processos envolvidos no estudo de instrumento musical. Nenhum dado pessoal será recolhido, ou seja, você não será identificado.

Observações:

- As respostas a este questionário serão armazenadas em computador pelos pesquisadores pelo período de 5 anos após o final da pesquisa, de acordo com a Res. CNS 510/16.

Desconfortos e riscos:

Esta pesquisa não apresenta riscos previsíveis.

Benefícios:

O benefício da participação nesta pesquisa está em refletir e compartilhar pensamentos e opiniões acerca das estratégias usadas na prática diária e na performance de violão.

Acompanhamento e assistência:

A qualquer momento, antes, durante ou até o término da pesquisa, os participantes poderão entrar em contato com os pesquisadores para esclarecimentos e assistência sobre qualquer aspecto da pesquisa ou danos decorrentes da pesquisa.

Sigilo e privacidade:

Você tem a garantia de que sua identidade não será obtida e nenhuma outra informação pessoal será recolhida por meio deste questionário.

Ressarcimento e indenização:

Esta atividade não oferece ressarcimento material, porque não são previstos gastos materiais a partir de sua participação. Não será oferecido ressarcimento de deslocamento porque a pesquisa acontecerá de maneira online.

Você terá a garantia ao direito a indenização diante de eventuais danos decorrentes da pesquisa quando comprovados nos termos da legislação vigente.

Contato:

Em caso de dúvidas sobre a pesquisa, você poderá entrar em contato com os pesquisadores:

Camilla dos Santos Silva: Rua Elis Regina, 50. Telefone +55 (19) 982 983 191. E-mail: silvacamilla89@gmail.com.

Helena Marinho: Campus Universitário de Santiago; Telefone: +351 234 370 200. Aveiro Portugal. E-mail: helenamarinho@ua.pt

Em caso de denúncias ou reclamações sobre sua participação e sobre questões éticas do estudo, você poderá entrar em contato com a secretaria do Comitê de Ética em Pesquisa em Ciências Humanas e Sociais (CEP-CHS) da UNICAMP das 08h30 às 11h30 e das 13h00 às 17h00 na Rua Bertrand Russell, 801, Bloco C, 2º piso, sala 05, CEP 13083-865, Campinas – SP; telefone (19) 3521-6836; e-mail: cepchs@unicamp.br.

Responsabilidade do Pesquisador:

Nós asseguramos termos cumprido as exigências da resolução 510/2016 CNS/MS e complementares na elaboração do protocolo e na obtenção deste Termo de Consentimento Livre e Esclarecido. Asseguramos, também, ter explicado e fornecido uma via deste documento ao participante. Informamos que o estudo foi aprovado pelo CEP perante o qual o projeto foi apresentado e pela CONEP, quando pertinente. Comprometemo-nos a utilizar o material e os dados obtidos nesta pesquisa exclusivamente para as finalidades previstas neste documento ou conforme o consentimento dado pelo participante.

O Comitê de Ética em Pesquisa (CEP).

O papel do CEP é avaliar e acompanhar os aspectos éticos de todas as pesquisas envolvendo seres humanos. A Comissão Nacional de Ética em Pesquisa (CONEP), tem por objetivo desenvolver a regulamentação sobre proteção dos seres humanos envolvidos nas pesquisas. Desempenha um papel coordenador da rede de Comitês de Ética em Pesquisa (CEPs) das instituições, além de assumir a função de órgão consultor na área de ética em pesquisas.

Ao clicar no botão abaixo, você concorda em participar da pesquisa nos termos deste TCLE. Caso não concorde em participar, feche esta página no seu navegador.

8.8. Anexos Artigo 1

Supplemental Table 1 (Table S1) - Search strings and results by source

Source	Search string	Results
Google Scholar	("Self-regulat*" OR Metacog* OR "Social-cognitive") AND ("Expert music*" OR "Elite music*" OR "Professional music*" OR "Undergraduate music*" OR "Postgraduate music*" OR "College music*" OR "Advanced music*")	839
SCOPUS	("Self-regulation" OR "Self-regulatory" OR "Self-regulated" OR Metacognition OR Metacognitive OR "Social-cognitive") AND ("Expert musicians" OR "Elite musicians" OR "Professional musicians" OR "Undergraduate musicians" OR "Postgraduate musicians" OR "College musicians" OR "Advanced musicians")	485
SAGEPUB	("Self-regulation" OR "Self-regulatory" OR "Self-regulated" OR Metacognition OR Metacognitive OR "Social-cognitive") AND ("Expert musicians" OR "Elite musicians" OR "Professional musicians" OR "Undergraduate musicians" OR "Postgraduate musicians" OR "College musicians" OR "Advanced musicians" OR "music student")	324
Science Direct	("Self-regulation" OR "Self-Regulated" OR Metacognition) AND ("Expert musicians" OR "Professional musicians" OR "Undergraduate musicians" OR "College musicians" OR "Advanced musicians" OR "Music student")	101
EBSCO	"Self-regulation" AND ("Expert musicians" OR "Professional musicians" OR "Advanced musicians" OR "College musicians" OR "Conservatory musicians") NOT ("Therapy")	287
ERIC	self-regulation AND (music OR musicians OR musical)	78
Web of Science	(TS=(Self-regulation") OR TS=("Self-regulated") OR TS=("Metacognition")) AND	864

	(TS=(Expert musicians") OR TS=(“Professional musicians”)) OR TS=(“Undergraduate musicians”) OR TS=(“College musicians”) OR TS=(“Advanced musicians”) OR TS=(“Music Students”) NOT TS=(Therapy)	
Jstor	((“Self-regulation” OR “Self-regulated”) AND (“Expert musicians” OR “Elite musicians” OR “Professional musicians” OR “Undergraduate musicians” OR “College musicians” OR “Advanced musicians”))	147
APA psycinfo	“Self-regulation” AND music NOT Therapy	198
TOTAL		3323

Supplemental Table 2 (Table S2) - Information about retrieved articles

	Author + Year	Country	Expertise	Participants (N + age + gender + level)				Design/Length/Instruments	Main Findings
01	Nielsen, 2001	Norway	Classical	2	30	n/a	U	Case study; 4 weeks; verbal reports; video recording	- Identified extensive self-regulatory skills. - Lack of performance monitoring. - Lack of self-recording strategies.
02	Nielsen, 2004	Norway	Classical / Jazz / Pop	130	18-43	F=71; M=59	U	Descriptive-correlational: Length N/A; Motivated Strategies for Learning Questionnaire (Pintrich et al., 1991)	- First-year music students did not report relying on external resources (social factors dimension). - Advanced music students did not report planning the daily practice.
03	Byo, Cassidy, 2008	USA	Classical	38	n/a	n/a	U	Case study; 1 day; original questionnaire; video recording	All participants reported using practice strategies (survey), but only a small number effectively applied strategies to their practice (observation).
04	Kim, 2010	USA	Classical	4	n/a	n/a	U	Intervention; 2 weeks; semi-structured practice diary; interviews about practice	- Younger students: lack of time management and focus maintenance. - Older students: poor management of technical problems. - The practice diary is an effective tool to investigate SRL in practice.
05	Clark, Williamon, 2011	UK	Classical	23	20 - 51	M=9; F=14	U; G	Intervention, 9 weeks, Self-Regulated Learning Interview Schedule (Zimmerman & Martinez-Pons, 1986); Musical Skills Survey (Ritchie & Williamon, 2011); Questionnaire upon Mental Imagery - Betts QMI (Sheehan, 1967); video recording	- Significant increase in score on the Musical Learning and Self-regulation questionnaire. - Significant increase in practice after the training phase.
06	Dos Santos, Gerling, 2011	Brazil	Classical	15	19 - 45	F=6; M=9	U; G	Case study; 16 weeks; Semi-structured interviews; performance videos	- Self-regulation mainly grounded in the method dimension. - Limited use of the social factors dimension. - The method and behavior dimensions are interdependent.

07	Deniz, 2012	Turkey	n/a	4	n/a	F=2; M=2	U	Intervention; 4 weeks; video recording	Video recording allowed: • Re-watching and recalling piano performance and instructor feedback about the performance; • Motivation for practice; • Identifying weak and strong aspects of their performance; • Performance improvement.
08	Nielsen, 2012	Norway	Classical + Jazz	130	18 - 43	M=59; F=71	U	Descriptive-correlational; Motivated Strategies for Learning Questionnaire (Pintrich et al., 1991) Norwegian adaptation of the Epistemological Belief Questionnaire (EQ) (Schommer, 1990).	• Participants who believed that ability is a fixed characteristic were less likely to use metacognitive strategies than those who believe in ability as a result of learning and effort. • Students who considered musical knowledge as integrated parts that lead to musical performance evolution are more likely to use elaboration, organization, and metacognitive strategies than participants that viewed knowledge in music as a fragmented path.
09	Ritchie, Williamon, 2013	UK	Classical	139	18 - 67	M=62; F=77	U	Descriptive-correlational; Length n/a; original questionnaire	• Help seeking was the most reported SRL strategy. • Physical environment structuring was the least reported SRL strategy.
10	Bonneville-Roussy, Bouffard, 2015	Canada	Classical / Jazz	173	16-30	M=92; F=81	U	Descriptive-correlational; questionnaire (Bonneville-Roussy et al., 2011; Bouffard et al., 1995; McPherson & McCormick, 2006; Miksza, 2006, 2007); College grades	• Self-regulation and deliberate practice strategies predicted musical achievement. • A smaller number of hours of deliberate practice is more predictive of achievement than the number of hours of practice overall.
11	Miksza, 2015	USA	Classical	28	20	M=15; F=13	U	Intervention; 5 days; Performance evaluation scale (Ciorba & Smith, 2009); practice frame analysis (Maynard, 2006; Miksza, 2012)	• Participants in the experimental group displayed greater improvement in performance achievement than participants in the control group.
12	Miksza, Tan, 2015	USA	Classical	52 + 241	20,9 7 Y	F=56% M=44 %	PM +U	Descriptive-correlational; original questionnaire (authors + adaptation of (Zimmerman et al., 1992).	• Reflective practice behaviors significantly related to practice efficiency, flow during practicing, and self-efficacy for self-regulation. • Difference between the daily practice strategies recommended by teachers and the strategies reported by their students.

13	Nielsen, 2015	Norway	Jazz	2	n/a	n/a	U	Case study; 7 days; video recording, stimulus recall interviews; practice measures	• Use of different types of cognitive strategies. • Tendency to adapt strategy after an unsuccessful performance • High scores for most of the self-regulated practice behaviors
14	Araújo, 2016	PT	Classical	212	18 - 58	M = 52.4%, F = 47.6%	U, G, PM	Descriptive-correlational; original questionnaire	
15	Hatfield, 2016	Norway	Classical / Jazz	6	n/a	n/a	U	Intervention, 15 weeks; Self-regulated Learning in Music Questionnaire (Hatfield et al., 2017); Music Journal app; research log, practice journals	• Participants at pre-test had little or no experience of planning and goal setting for instrumental practice. • Psychological skills training (with special emphasis on planning and goal setting) facilitated cyclical self-regulated learning patterns in the participants. • The intervention facilitated participants' concentration, self-observation, self-efficacy, and ability to cope when faced with failure. • The practice journal facilitated self-observation, self-evaluation, and awareness of instrumental practice. • The intervention reduced the participants' worry and anxiety in performance situations.
16	Hatfield, Halvari, Lemyre, 2017	Norway	Classical	204	n/a	F = 47.1%, M = 52.9%	G+ U	Descriptive-correlational; quantitative; Self-regulated Learning in Music Questionnaire original + adaptations (Smith et al., 1995; Toering et al., 2012).	• Master/post-master students apply goal setting and psychological skills to a greater extent than bachelor students. • Processes of the self-reflection phase significantly predicted processes of forethought phase.
17	Ersözlu, Nietfeld, Huseynova, 2017	Turkey	n/a	123	n/a	F = 70; M = 53	U	Descriptive correlational, Music Self-Regulated Studying Strategies Survey (MSRSS) (original); college grades (GPA)	• The planning factor was not a significant predictor of the students' instrumental success. • The evaluation strategies displayed a negative relationship with the performance success in instrumental courses.
18	Pike, 2017	USA	Classical	1	n/a	M	G	Intervention; 4 months; Reflective practicum	• The intervention led to improvement of planning, goal setting, and performance outcomes.

19	Volioti, William, 2017	UK	Classical	204	17-69	F= 138; M=66	U+ G+ PM	Descriptive-correlational; original questionnaire	• Students rely more on audio recordings for their practice. • Listening to recordings can improve music learning.
20	Dos Santos, 2018	BR	Classical	3	n/a	M=3	U	Case study; 22 weeks; semi-structured interview; recorded performances analysis; non-structured interview; video recall-stimulated interview	• Music learning should address more processes and strategies than just practicing short excerpts of the piece until they are mastered. • Instrumental teaching should also include a certain degree of questioning to promote critical and reflexive thinking, in order to foster generative ways of thinking and acting while learning repertoire.
21	Miksza, Blackwell, Rose, 2018	USA	Classical	3	n/a	M=1; F=2	U	Intervention; 15 days; entrance interviews; practice efficacy ratings; microanalysis sessions; behavioral analyses through video-recording; focus group exit interview.	• Increase in practice efficacy after the intervention. • Increase in awareness of gaps in self-regulation processes and how to address them.
22	Topoglu, Topoglu, 2018	Turkey	Classical	249	17 - 23	F= 131; M= 118	U	Descriptive-correlational; Self-Regulation in Instrumental Practice Scale (Özmenteş, 2007)	• Minor positive significant correlation between perceived self-regulation beliefs and musical achievement. • Participants who practice their instruments for more than 3 hours reported more self-regulation than participants who practice for less than an hour every day. • Positive correlations between self-regulation of instrument practice and academic scores of instrument classes.
23	Casas-Mas, López-Iñiguez, Pozo, Montero, 2019	Spain	Classical, Jazz, Flamenco	6	n/a	n/a	PM	Case study; Length n/a; Pre- and post-practice interviews; practice video-recording; System for Analyzing the Practice of Instrumental Lessons (SAPIL) (Pozo, 2008).	• Engaging in private singing can aid in maintaining motivation, cognitive abilities, emotions, and behaviors while practicing music. It is similar to mental imagery, but involves the body.

24	McPherson, Osborne, Evans, Miksa, 2019	Australia, USA	Classical	2	17 - 18	F	U	Case study; 1 semester; original microanalysis protocol	The students showed little awareness of key attributes within the forethought and self-reflection phases of SRL.
25	Antonini Phillipe, Kosimik, Vuichoud, Clark, Williamon, McPherson, 2020	Australia	Classical	13	19- 21y	F=6; M=7	U	Case study; Length n/a; Elicitation interviews.	Students went through different phases in a similar manner without questioning their effectiveness.
26	Boon, 2020	Turkey	Classical	222	n/a	F=121; M=101	U	Descriptive-correlational; Self-Regulated Learning Skills Scale (Turan, 2009).	- Students whose instrument exam grade was higher than 76 reported more use of planning and goal setting strategies. - Participants who reported more than 3h of practice per day showed higher SRL skills than those who practiced less.
27	Boucher, Creech, Dube, 2020	Canada	Classical	16	C= M 17.9 E= 19	n/a	U	Intervention; 12-18 days; video-recording	- Musicians who used video feedback tended to practice at a slower tempo and played longer segments of the piece earlier on during the learning process than those who did not use it. - All participants displayed similar results regarding the variety of practice strategies, irrespective of their use of video feedback.
28	Kegelaers, Oudejan, 2020	NL	Classical	8+7	M= 4; F=1 1	N/A	PM	Intervention; 10 weeks; semi-structured interviews	- The intervention led participants to re-evaluate their practice habits, increased their awareness, and become more organized and goal-oriented. - The intervention increased practice efficiency and focus.
29	López-Iñiguez, McPherson, 2020	Finland	Classical	1	n/a	F	PM	Case study; 100 weeks; questionnaire (the authors); feedback from the audience and from an expert.	The promotion of metacognitive processes such as self-monitoring and self-observation helped to develop more complex rehearsal strategies.
30	Mornell, Osborne, McPherson, 2020	Germany	Classical	14	MA : 26.8 8 y	F=10; M=4	PM, G,U	Case study; one practice session; original questionnaire "Self-Regulated Practice Strategies of University Musicians."	- Participants showed difficulty in applying strategies in all SRL phases. - Participants were unable to perceive their stages of learning.

31	Peistaraitė, Clark, 2020	UK	Classical	334	18 - 66	F=215; M=119	U+ PM	Descriptive-correlational; SRLMQ (Hatfield et al., 2017); Emotion Regulation Questionnaire (Gross and John, 2003)	- Adapting ER strategies (reappraisal) and the amount of practice led to more engagement in SRL processes. - Emotion regulation strategies can optimize efficiency and engagement in SRL and musical achievement.
32	Boucher, Creech, Dubé, 2021	Canada	Classical	16	C=17.9 M=19	n/a	U	Intervention; 12–18 days, video recording	- Participants who used video feedback modified their self-evaluative comments after watching the videos. - Participants changed their self-evaluative comments, which became progressively more associated with strategy selection and adaptation.
33	Osborne, McPherson, Mikzsa, Evans, 2021	Australia	Classical	7	18.8 8y 17–23	n/a	U	Intervention; 9 weeks; original Self-Directed Practice Journal	- The intervention improved the use of strategies and personal resources during music learning. - Differences found in SRL scores between high- and low-achievement groups.
34	Dos Santos Silva; Fiorini, 2021	BR	Classical	11	20 - 29	F=2; M=9	U	Case study; two sessions; questionnaire (Araújo, 2016); focus group interviews.	Students employ strategies that encompass the six psychological dimensions of learning, yet they face challenges in processes such as goal-setting, time management, and adapting strategies when starting a new learning process.
35	Kaleli, 2021	Turkey	Classical	198	M=21.2)	F=136; M=62	U	Descriptive-correlational; Academic Self-regulatory Skills Scale (Arslantas, 2015)	- High achievers reported higher self-regulatory skills than low and moderate achievers. - As the level of achievement increases among participants, their self-regulatory abilities also improve.

36	López-Iñiguez, McPherson, 2021	Finland	Classical	1	~35	F	PM	Case study; 100 weeks; original emotion questionnaire	Self-regulation tasks can help with the ability to cope with a demanding situation, and avoid emotional dysregulation.
37	Nusseck, Spahn, 2021	Germany	Classical	33	20.1	57.6% Female	U	Descriptive-correlational; Musical Self-Regulated Learning Questionnaire (Ritchie & Williamson, 2013); Epidemiological Questionnaire for Musicians (Spahn et al., 2002)	- Students seem to usually rely more on the teachers' advice than on their own beliefs. - No significant difference was found between study majors (instrument or music education). - No significant correlations were found between amount of practice and self-efficacy and self-regulation.
38	Huang, Song, 2021	Taiwan	Classical	53	n/a	F=46; M=7	U	Intervention; 4 weeks; 'performance diary'; semi-structured interviews	- Keeping a performance journal can help individuals identify Music Performance Anxiety (MPA), develop metacognitive abilities, and improve techniques for managing MPA. - Not all teachers fully acknowledge their role in aiding students to address MPA.
39	Kegelaers; Hoogkamer; Oudejans, 2022	Netherlands	Classical	8	M=23.75; SD=1.39	F=1; M=8	PM	Case study; 28 days; semi-structured interviews; regular structured monitoring interviews	- Participants used different performance management strategies to cope with the pressure of auditions. - Emerging musicians are aware of different practice and performance strategies but the employment of these strategies is not consistent.
40	Suzuki, Mitchell, 2022	Australia	Classical	5	n/a	n/a	U + G+ PM	Case study; 2 days, interviews; practice video recordings	- Practice strategies not related to playing the instrument (score study, mark score, self-recording) facilitated self-regulation The lowest-ranked pianist did not report identifying technical problems or performing self-evaluation.
41	Turhal, 2022	Turkey	Classical	240 +5	18-26+	F=131; M=109	U	Descriptive-correlational; Self-Regulation Behaviors of Music Students' questionnaire (Ersozlu & Miksza, 2015).	Participants showed difficulty in applying strategies to manage practice time.

									- Participants reported using metacognitive strategies such as practice diaries and audio recording. - Participants reported as the most helpful strategies during practice: listening to records, slow practice, and focus managing. - Participants employ strategies to increase and sustain motivation.
42	Vellacott; Ballantyne, 2022	Australia	Classical	6	n/a	F=2; M=4	PM	Case study; one-session semi-structured interviews.	- SRL processes are interdependent and occur simultaneously in more than one psychological dimension - Similarly, SRL learning strategies can affect more than one dimension
43	Dos Santos Silva; Marinho; Fiorini, 2023	BR/PT	Classical	1	29	F	G	Case study; 100 days, practice video-recording; practice journal	- Woodwind and brass players reported more practice organization strategies than keyboard players; - String, woodwind, and brass players reported using more self-monitoring strategies than keyboard players; - Brass players reported more time of attention focusing than keyboard players.
44	Liu, 2023	USA	Classical	154	n/a	F=83; M=71	U	Descriptive-correlational; questionnaire adapted from Hallam et al. (2012).	Despite the impact of the COVID-19 pandemic on graduate instrumentalists' practice and psychological state, the participants reported self-regulation skills like goal-setting and adaptation.
45	Liu, 2023	China	Classical	4	22-23	F=2;M=2	G	Case study; 3 weeks; practice video recordings; video-stimulated recall interviews, original questionnaire	Advanced musicians showed difficulties employing SRL strategies, despite their knowledge of practice strategies.
46	Mikszta; Brenner, 2023	USA	Classical	4	n/a	F=3; M=1	G;U	Case study; 2 weeks; original questionnaire, practice diaries, behavioral observations; automated offline score-following program; video stimulated recall interviews	

47	Woody, 2023	USA	Classical	100	19.7	F=45; M=55	U	Intervention; 1 practice session; practice instruction sheet	• Participants in the experimental group reported applying more SRL processes and more learning practice strategies.
48	Zhang, Kwan, Leung, 2023	China	Classical	880	M=21.6 4 (SD=2.94)	F=658; M=	U;G	Descriptive-correlational; Chinese-adapted Self-Regulated Practice Behavior (Miksza, 2012).	• Cultural background affects advanced musicians' conception of self-regulated practice.

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8.9. Anexos Artigo 2

Análise de ocorrência de palavras

Com o auxílio do *software* de análise quantitativa Nvivo 11, organizamos a ocorrência de palavras em três análises: geral, Grupo 1 e Grupo 2.

A palavra mais mencionada foi “estudo” e suas variáveis, com 85 entradas, seguida por “peça” (25), “ambiente” (24), “técnica” (23) e “repertório” (16). Estas palavras se relacionam à prática diária de maneira geral. Palavras que fazem referência a estratégias e processos mais específicos da aprendizagem musical ocorrem em número consideravelmente menor, como “aquecer” (6 entradas), “exercícios”, “metrônomo” e “sonoridade” com 5 entradas cada uma.

A Tabela a seguir (Tab. 1) reúne os dados sobre a diferença de ocorrências de palavras selecionadas entre os dois grupos¹:

Palavra	Grupo 1	Grupo 2
Estudo	41	44
Peça	8	17
Ambiente	10	14
Técnica	15	8
Repertório	11	5
Cadeira	11	5
Decorar (Memorizar)	13	2
Estante	8	5
Gravação	7	2
Ajuda	2	6
Aquecer	1	5
Exercícios	5	-
Metrônomo	4	1
Sonoridade	5	-
Alongamento	3	-
Método	3	-
Colegas	-	4

Tab. 1: Diferenças na ocorrência de palavras entre os grupos

A principal diferença entre os dois grupos, como mencionado anteriormente, é a presença, no G1, de dois alunos flautistas e um aluno contrabaixista. Devido a essa

¹ A análise completa pode ser obtida com a primeira autora, mediante contato por e-mail.

característica, podemos identificar algumas palavras que tiveram ocorrências consideravelmente divergentes entre os grupos. Alguns exemplos são as palavras “alongamento”, “método” e “sonoridade”, que, pelas transcrições das sessões, identificamos que apenas os alunos no Grupo 1 mencionaram estas três palavras.

Por outro lado, o Grupo 2, que reuniu apenas violonistas, demonstrou uma tendência em discutir mais as questões da dimensão social da prática musical, a julgar pela predominância sobre o Grupo 1 na ocorrência das palavras “ambiente”, “ajuda” e “colegas”.

8.10 Anexos artículo 3

Appendix A – List of videos

#100daysofpractice challenge: List of contents.

The first video was recorded and published at January 1st, 2019 and the last, 100 days later: April 11th, 2019.

#1: Introduction of the challenge and practice of “Prelude” from “Prelude, Fugue and Allegro - BWV 998” (Bach, 1735/1999)

#2: Prelude from J. S. Bach’s (1735/1999) Prelude, Fugue and Allegro BWV 998.

#3: Alba (Haug, 1954).

#4: Capricho Catalán (Albeniz, 1890/1976).

#5: Mistérios (Moreno & Maestro, 1980).

#6: Capricho Catalán (Albéniz, 1890/1976).

#7: Danza Española no. 5 - Andaluza (Granados, 1893/2000).

#8: Los ejes de mi carreta (Yupanqui, 2006).

#9: Technique practice: Complete technique book (Tarrega, 1969).

#10: Practicing chamber music repertoire.

#11: Practicing Capricho Catalán (Albéniz, 1890/1976).

#12: Record of a performance: playing professionally.

#13: Practicing chamber music repertoire.

#14: El Noy de la Mare (Llobet, 1989)

#15: Fernando Sor’s (1827) op. 28 “Introduction and Variations on ‘Malbrough’” -

Theme

#16: Fernando Sor’s (1827) op. 28 “Introduction and Variations on ‘Malbrough’” –

Variation 1.

#17: Fernando Sor’s (1827) op. 28 “Introduction and Variations on ‘Malbrough’” –

Variation 2.

#18: Fernando Sor’s (1827) op. 28 “Introduction and Variations on ‘Malbrough’” –

Variation 3.

#19: Fernando Sor’s (1827) op. 28 “Introduction and Variations on ‘Malbrough’” –

Variation 4.

#20: Fernando Sor’s (1827) op. 28 “Introduction and Variations on ‘Malbrough’” –

Variation 5 part 1.

#21: Fernando Sor’s (1827) op. 28 “Introduction and Variations on ‘Malbrough’” –

Variation 5 parts 2 and 3.

#22: Fernando Sor’s (1827) op. 28 “Introduction and Variations on ‘Malbrough’” –

Introduction.

- #23: Scales from the book Complete Technical Studies (Tarrega, 1969).
- #24: Estudio Sencillo n. 5 by Leo Brouwer (1972a).
- #25: Greece (Rougier, 2017).
- #26: Sonatina Meridional (I. Campo) by Manuel Ponce (1967).
- #27: Sonatina Meridional (II. Copla) by Manuel Ponce (1967).
- #28: Sonatina Meridional (III. Fiesta) by Manuel Ponce (1967).
- #29: Etude op. 44 n. 19 (Sor, n.d.).
- #30: Danza Española n. 5 – Andaluza by Enrique Granados (2000).
- #31: Technique Practice: Complete Technical Studies (Tarrega, 1969).
- #32: Prelude of “Prelude, Fugue and Allegro - BWV 998” (Bach, 1735/1999).
- #33: Etude Op. 50 n. 20 (Giuliani, n.d. a).
- #34: Itanhangá (Da Viola, 2005).
- #35: Allegro from Prelude, Fugue and Allegro BWV 998 (Bach, 1735/1999).
- #36: Bulgarie (part 1) by Thierry Rougier (2017).
- #37: Bulgarie (part 2) by Thierry Rougier (2017).
- #38: Roumanie (part 1) by Thierry Rougier (2017).
- #39: Roumanie (part 2 and 3) by Thierry Rougier (2017).
- #40: Grèce by Thierry Rougier (2017).
- #41: Estudios Sencillos by Leo Brouwer (1972a) n. 1. Technical issue: Melody played by the thumb.
- #42: Estudios Sencillos by Leo Brouwer (1972a): n. 2. Technical issue: Chord balance.
- #43: Estudios Sencillos by Leo Brouwer (1972a): n. 3. Technical issue: Repeated notes.
- #44: Estudios Sencillos by Leo Brouwer (1972a): n. 4. Technical issue: Melody played by the thumb + chord balance.
- #45: Estudios Sencillos by Leo Brouwer (1972a): n. 5. Technical issue: Rhythm + accents.
- #46: Estudios Sencillos by Leo Brouwer (1972b): n. 6. Technical issue: Arpeggios and fingers balance.
- #47: Estudios Sencillos by Leo Brouwer (1972b): n. 7. Technical issue: Slurs.
- #48: Estudios Sencillos by Leo Brouwer (1972b): n. 8. Technical issue: Melody played by the thumb.
- #49: (Pause at the Leo Brouwer’s “Estudios Sencillos” series as I had a guitar recording session). Practicing the guitar arrangement for the recording.
- #50: Video of the performance of the arrangement recorded this day at the

studio.

#51: Estudios Sencillos by Leo Brouwer (1972b): n. 9. Technical issue: Rhythm +

slurs.

#52 Estudios Sencillos by Leo Brouwer (1972b): n. 10. Technical issue: Scales.

#53: Danza Española n. 5 - Andaluza by Enrique Granados (2000).

#54: Technique Practice: Complete Technical Studies (Tarrega, 1969)

#55: Practicing guitar and voice arrangement for “Tenpu ki Bai”, a song from the Cape Verdean composer Mayra Andrade (2013).

#56: Prelude 1 by Heitor Villa-Lobos (1954).

#58: Capricho Catalán (Albéniz, 1890/1976).

#59: Theme and Variations for guitar, op. 77 by Lennox Berkeley (1970) –

Theme.

#60: Theme and Variations for guitar, op. 77 by Lennox Berkeley (1970) –

Variation 1.

#61: Pierrot Apaixonado by Noel Rosa e Heitor dos Prazeres (1936)

#62: Etude Op. 60 no. 2 by Fernando Sor (1915).

#63: “Allegro” from “Prelude, Fugue and Allegro - BWV 998” (Bach, 1735/1999).

#64: Sonatina Meridional (I. Campo) by Manuel Ponce (1967).

#65: Theme and Variations for guitar, op. 77 by Lennox Berkeley (1970) –

Variation 5.

#66: Theme and Variations for guitar, op. 77 by Lennox Berkeley (1970) –

Variation 2

#67: Video of Performance: Practice video from a professional recording made this day in a Brazilian guitar luthier’s atelier. Repertoire: Capricho Catalán (Albéniz, 1890/1976).

#68: Hommage by Manuel de Falla (1920).

#69: Theme and Variations for guitar, op. 77 by Lennox Berkeley (1970) –

Variation 4.

#70: Prelude from Prelude, Fugue and Allegro BWV 998 (Bach, 1735/1999).

#71: “Allegro” from Prelude, Fugue and Allegro BWV 998 (Bach, 1735/1999) at different *tempos*.

#72: Etude op. 31 n. 1” by Fernando Sor (1890) part 1.

#73: Etude op. 31 n. 18 by Fernando Sor (1890) part 2.

#74: Estudio Sencillo n. 12 by Leo Brouwer (1985).

#75: Practicing the transcription of an improvisation made by the Brazilian classical guitarist Cristina Azuma (Rougier, 2017).

#76: Performance: live video of an arrangement of “Los ejes de mi carreta” by

Atahualpa Yupanqui (2006), played in a concert this day.

#77: Theme and Variations for guitar, op. 77 by Lennox Berkeley (1970) – Variation 3.

#78: Theme and Variations for guitar, op. 77 by Lennox Berkeley (1970) – Variation 6.

#79: Estudio Sencillo n. 11 by Leo Brouwer (1985).

#80: Estudio Sencillo n. 17 by Leo Brouwer (1985).

#81: Xangô by Martins (2016)

#82: “Allegro” from “Prelude, Fugue and Allegro BWV 998” (Bach, 1735/1999).

#83: Capricho Catalán (Albéniz, 1890/1976).

#84: Roumanie by Thierry Rougier (2017).

#85: Etude op. 50 n. 5 by Mauro Giuliani (n.d.a).

#86: Prelude 1 by Heitor Villa-Lobos (1954).

#87: “Prelude” from Prelude, Fugue and Allegro - BWV 998 (Bach, 1735/1999).

#88: Julia Florida by Augustin Barrios Mangoré (1938/2010).

#89: Estudio Primario n. 1 by Abel Carlevaro (1987).

#90: Estudio Primario n. 2 by Abel Carlevaro (1987).

#91: Roumanie by Thierry Rougier (2017).

#92: Adelita by Francisco Tarrega (n.d.).

#93: Practicing an improvise section transcribed from Cristina Azuma (Rougier, 2017).

#94: “Você Você” by Francisco Buarque de Hollanda (1997/2007).

#95: Microestudio n. 1 by Abel Carlevaro (1992/2007).

#96: Fantasia 3 by Luís de Milán (1536/2000).

#97: Guitar and voice arrangement for “San Vicente” (Brant & Nascimento, 1972).

#98: Andante op. 121 n. 18 by Ferdinando Carulli (n.d.).

#99: Guitar and voice arrangement for the song “Lina” by Diogo Nazareth (2014).

#100: same piece as day #1: Prelude from Prelude, Fugue and Allegro BWV 998 (Bach, 1735/1999).

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APPENDIX B - Figures

Figure 1: Number of comments by Instagram users, per day.

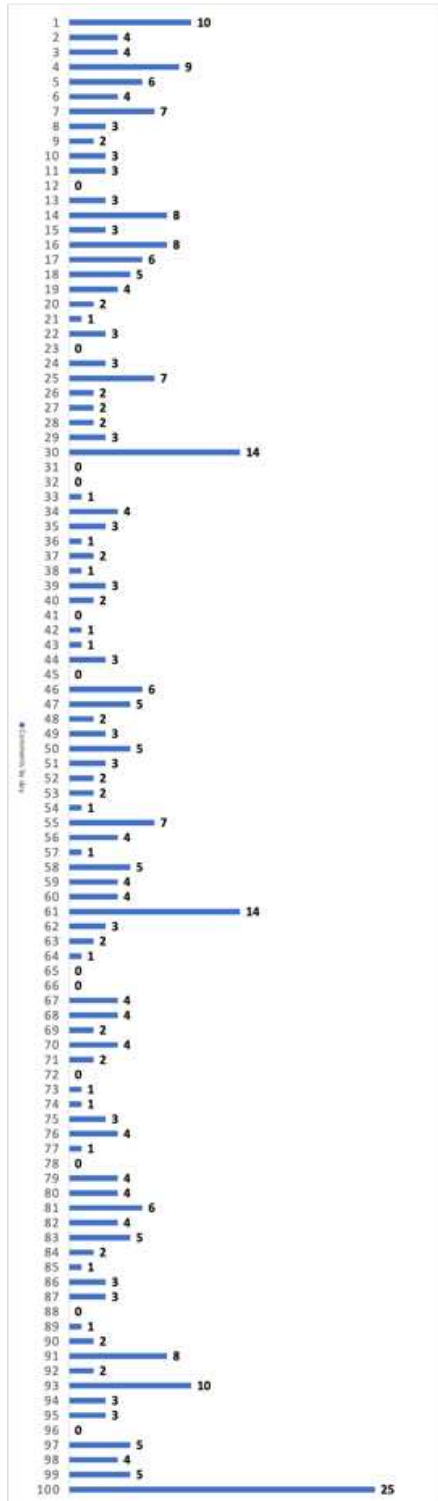
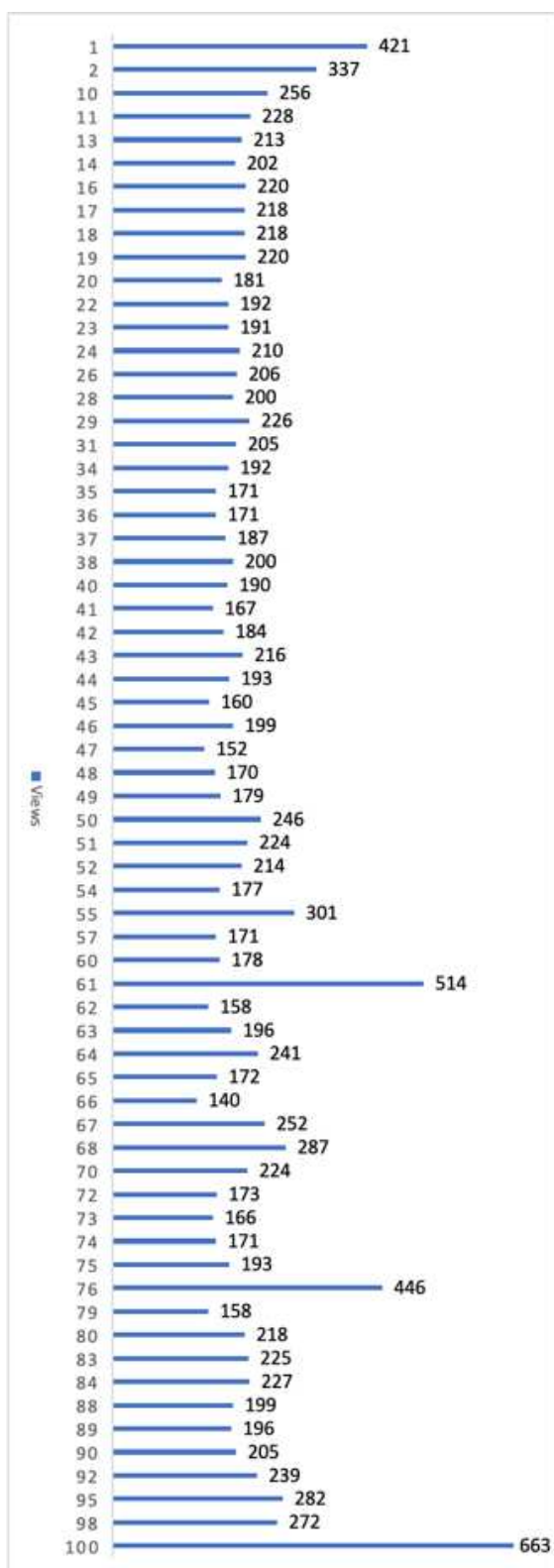
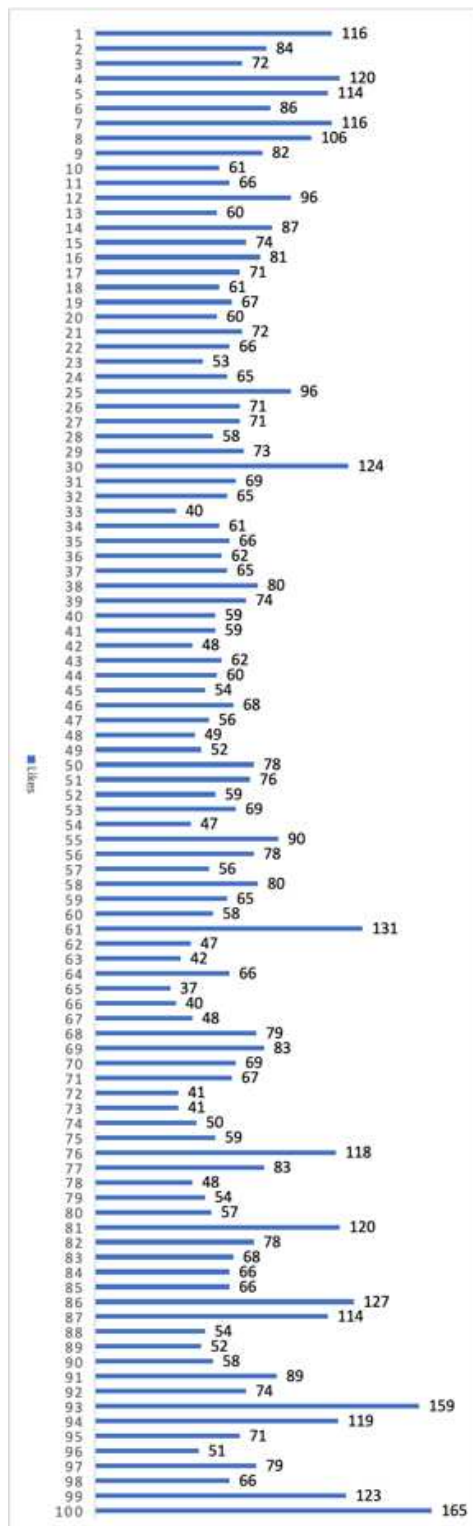


Figure 2: Number of publication's views, per day.



Some publications lack the number of views because on those days more than one video (or a video and a photo) were uploaded on the same post; Instagram did not display the number of views for those days.

Figure 3: Number of “likes” on each publication



8.11 Anexos Artigo 4

Supplementary Data: Survey: English Version

Attitudes in Music Practice

Demographical information

1. Age: _____

2. Gender:

Male	
Female	
Non-binary	

3. Nationality: _____

4. Academic qualifications (Please indicate your most advanced academic qualification)

Academic qualification	Start year	Conclusion year
Primary level		
Secondary level		
Bachelor degree		
Post-graduate certificate or diploma		
Masters degree		
Doctoral qualification		
Other: (please specify) _____		

Musical instrument

6. What is your main musical instrument (singers please answer 'voice'):

7. Please indicate how old you were when you started taking instrumental or vocal lessons:
_____ years

8. Performance experience

How many years have you been performing in public (from your first public performance)?
_____ years

Practice frequency and performances

9. Concerts per year:

Please indicate the average number of concerts per year in which you have an important role (consider school auditions, public performances, chamber music performances, solos with an orchestra, among others):

Less		Between 10		Between 21 -		Between 31		More than	
------	--	------------	--	--------------	--	------------	--	-----------	--

than 10		- 20		30		- 40		40	
---------	--	------	--	----	--	------	--	----	--

10. Practice: hours

How many hours do you currently practice per day (average)?

No more than 1h		Between 1h - 2h		Between 2h - 3h		Between 3h - 4h		More than 4h	
-----------------	--	-----------------	--	-----------------	--	-----------------	--	--------------	--

11. Practice: days

How many days do you currently practice per week (average)?

1 - 2 days		3 - 4 days		5 - 6 days		Every day	
------------	--	------------	--	------------	--	-----------	--

12. Have you ever been awarded a prize in a musical performance competition?

Yes	
No	

12.1 If you answered 'yes', please indicate how many prizes you received: _____

ATTITUDES TOWARDS THE PRACTICE PROCESS

4=Agree

Please indicate your response to the following statements:

In my practice:

1=Never 2=Rarely 3=Sometimes 4=Often 5=Always

I set goals for my practice sessions	1	2	3	4	5
I set short-term goals (minutes, hours, days)	1	2	3	4	5
I set long-term goals (weeks, months, years)	1	2	3	4	5
I set specific goals for my practice sessions	1	2	3	4	5
I understand that my goals are challenging	1	2	3	4	5

In my practice:

1=Completely disagree 2=Disagree 3=Neither agree nor disagree 4=Agree

5=Completely agree

I use specific strategies related to my practice goals	1	2	3	4	5
I am aware of the strategies that I use during practice.	1	2	3	4	5
I use strategies that have been effective in the past.	1	2	3	4	5
I know when and in which contexts my strategies will be most effective	1	2	3	4	5
I understand the nature and demands of my musical activities that my goals are challenging	1	2	3	4	5
I know what I must do in order to complete my musical activities satisfactorily	1	2	3	4	5

In my practice:

1=Never 2=Rarely 3=Sometimes 4=Often 5=Always

I plan the order of the activities of my practice sessions	1	2	3	4	5
I plan the time of my practice sessions	1	2	3	4	5
I organize the physical environment of my practice sessions	1	2	3	4	5
I evaluate the progress made towards my goals	1	2	3	4	5
I seek information from several sources (books, CDs, videos, internet, biographies, arts, etc.) to support my study	1	2	3	4	5
I request help from others (teachers, peers, composers, musicologists and specialists)	1	2	3	4	5

Reflecting about my own characteristics as a performer, I believe that:

1=Completely disagree 2=Disagree 3=Neither agree nor disagree 5=Completely agree

I am able to achieve my practice goals satisfactorily	1	2	3	4	5
I cannot reach my practice goals without the support of some external factors (peers, teachers, materials, environment)	1	2	3	4	5
I understand my strengths and weaknesses	1	2	3	4	5
I practice in order to improve my musical skills	1	2	3	4	5
I practice in order to achieve high ratings (e.g. grades) and positive feedback	1	2	3	4	5

Supplementary Tables

Supplementary Table 1. EFA 2-factor model

		f1	f2
1	I set goals for my practice sessions	0.784	
2	I set short term goals (minutes, hours, days)	0.600	
3	I set long-term goals (weeks, months, years)	0.475	
4	I set specific goals for my practice sessions	0.792	
5	I understand my goals are challenging	0.470	
6	I use specific strategies related to my practice goals	0.321	0.527
12	I plan the order of the activities of my practice sessions	0.745	
13	I plan the time of my practice sessions	0.715	
14	I organize the physical environment of my practice sessions	0.527	
15	I evaluate the progress made towards my goals	0.628	
16	I seek information from several sources (books, CDs, videos, internet, biographies, arts, etc.) to support my study	0.309	
17	I request help from others (teachers, peers, composers, musicologists and specialists)	0.507	-0.305
19	I cannot reach my practice goals without the support of some external factors (peers, teachers, materials, environment)	0.412	
21	I practice in order to improve my musical skills	0.472	
22	I practice in order to achieve high ratings (e.g. grades) and positive feedback	0.365	
7	I am aware of the strategies that I use during practice		0.806
8	I use strategies that have been effective in the past		0.487
9	I know when and in which contexts my strategies will be most effective		0.866
10	I understand the nature and demands of my musical activities		0.729
11	I know what I must do in order to complete my musical activities satisfactorily		0.855
18	I am able to achieve my practice goals satisfactorily		0.480
20	I understand my strengths and weaknesses		0.627

Supplementary Table 2. EFA 3-factor model (item 6 - crossloading)

		F1	F2	F3
1	I set goals for my practice sessions	0.963		
2	I set short term goals (minutes, hours, days)	0.726		
3	I set long-term goals (weeks, months, years)	0.380		
4	I set specific goals for my practice sessions	0.953		
12	I plan the order of the activities of my practice sessions	0.709		
13	I plan the time of my practice sessions	0.703		
14	I organize the physical environment of my practice sessions	0.451		
15	I evaluate the progress made towards my goals	0.636		
6	I use specific strategies related to my practice goals	0.364	0.498	
7	I am aware of the strategies that I use during practice		0.802	
8	I use strategies that have been effective in the past		0.496	
9	I know when and in which contexts my strategies will be most effective		0.841	
10	I understand the nature and demands of my musical activities		0.786	
11	I know what I must do in order to complete my musical activities satisfactorily		0.846	
18	I am able to achieve my practice goals satisfactorily		0.465	
20	I understand my strengths and weaknesses		0.666	
05	I understand my goals are challenging			0.301
16	I seek information from several sources (books, CDs, videos, internet, biographies, arts, etc.) to support my study			0.417
17	I request help from others (teachers, peers, composers, musicologists and specialists)			0.707
19	I cannot reach my practice goals without the support of some external factors (peers, teachers, materials, environment)			0.634
21	I practice in order to improve my musical skills			0.451

22	I practice in order to achieve high ratings (e.g. grades) and positive feedback			0.321
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Supplementary Table 3. Gender: descriptive statistics

			Bootstrap ^a			
			Statistics	Standard Error	BCa 95% Confidence Interval	
Dimension		Lower			Upper	
Practice Organization	Masc	N	162			
		Mean	29.64	.51	28.61	30.68
		SD	6.38	.33	5.76	6.91
	Fem	N	132			
		Mean	30.97	.46	29.74	31.58
		SD	5.33	.36	4.66	5.99
Personal Resources	Masc	N	162			
		Mean	28.92	.31	28.28	29.56
		SD	3.98	.25	3.53	4.39
	Fem	N	132			
		Mean	28.42	.33	27.80	29.06
		SD	3.91	.24	3.45	4.36
External Resources	Masc	N	162			
		Mean	18.80	.27	18.23	19.34
		SD	3.43	.16	3.11	3.68
	Fem	N	132			
		Mean	19.14	.25	18.63	19.63
		SD	2.93	.19	2.57	3.25
Total	Masc	N	162			
		Mean	77.35	0.89	75.48	79.21
		SD	11.19	0.63	10.02	12.15
	Fem	N	132			
		Mean	78.23	0.71	76.79	79.67
		SD	8.40	0.48	7.58	9.17

Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Supplementary Table 4. Nationality: descriptive statistics

Dimension			Statistics	Standard Error	Bootstrap ^a BCa 95% Confidence Interval	
					Lower	Upper
Practice Organization	Brazilian	N	202			
		Mean	30.06	.43	29.18	30.95
		SD	6.19	.32	5.61	6.70
	Portuguese	N	95			
		Mean	30.18	.52	29.19	31.23
		SD	5.33	.34	4.67	5.90
Personal Resources	Brazilian	N	202			
		Mean	28.49	.28	27.93	29.03
		SD	4.08	.22	3.66	4.46
	Portuguese	N	95			
		Mean	29.11	.37	28.36	29.82
		SD	3.58	.22	3.20	3.90
External Resources	Brazilian	N	202			
		Mean	19.04	.24	18.54	19.48
		SD	3.40	.15	3.10	3.66
	Portuguese	N	95			
		Mean	18.74	.28	18.15	19.26
		SD	2.75	.20	2.40	3.08
Total	Brazilian	N	202			
		Mean	77.59	0.72	76.04	78.98
		SD	10.46	0.57	9.48	11.41
	Portuguese	N	95			
		Mean	78.02	0.88	76.46	79.72
		SD	8.92	0.54	7.96	9.74

Supplementary Table 5. Musical Instrument: descriptive statistics

		Practice Organization			Personal Resources			External Resources			Total		
		BCa 95% Confidence Interval			BCa 95% Confidence Interval			BCa 95% Confidence Interval			BCa 95% Confidence Interval		
Instrument		Statistic	Lower	Upper	Statistic	Lower	Upper	Statistic	Lower	Upper	Statistic	Lower	Upper
Plucked Strings	N	149			148			149			148		
	Mean	30.19	29.17	31.14	28.67	28.07	29.27	19.03	18.47	19.57	77.85	76.25	79.39
	SD	5.91	5.29	6.43	3.94	3.45	4.38	3.45	3.11	3.74	10.09	8.93	11.24
Keyboards	N	32			32			32			32		
	Mean	30.00	27.69	32.26	28.66	27.23	30.00	17.97	17.22	18.73	76.63	73.07	80.18
	SD	6.37	4.88	7.36	3.86	3.28	4.23	2.42	1.94	2.79	9.74	7.63	11.33
Bow Strings	N	38			38			38			38		
	Mean	29.45	27.69	32.26	27.63	26.32	28.78	19.47	18.63	20.42	76.55	73.83	79.38
	SD	6.37	4.88	7.36	3.67	2.67	4.45	2.78	2.37	3.10	9.17	7.46	10.60
Voice	N	24			24			24			24		
	Mean	30.17	27.62	32.60	28.58	26.80	30.29	18.83	17.44	20.10	77.58	72.88	81.82
	SD	6.08	3.86	7.52	4.48	3.41	5.26	3.27	2.57	3.77	11.05	7.27	13.86
Wind	N	46			46			46			46		
	Mean	31.17	29.59	32.86	29.57	28.33	30.81	19.26	18.27	20.30	80.00	77.13	82.73
	SD	5.73	4.94	6.39	3.97	3.19	4.63	3.34	2.82	3.78	10.21	8.82	11.39
Total	N	289			288			289			288		
	Mean	30.23	29.52	30.98	28.67	28.23	29.12	18.99	18.63	19.37	77.86	76.70	79.06
	SD	5.91	5.46	6.32	3.95	3.62	4.27	3.24	3.02	3.45	10.03	9.19	10.83

Supplementary Table 6. Practice hours per day: descriptive statistics

		Practice Organization			Personal Resources			External Resources			Total		
		BCa 95% Confidence Interval			BCa 95% Confidence Interval			BCa 95% Confidence Interval			BCa 95% Confidence Interval		
Practice hours per day		Statistic	Lower	Upper	Statistic	Lower	Upper	Statistic	Lower	Upper	Statistic	Lower	Upper
Less than 1h	N	47			47	36		47			47		
	Mean	28.55	26.80	30.25	27.49	26.11	28.71	17.09	16.08	18.18	73.13	69.62	76.53
	SD	6.05	4.92	7.01	4.70	3.787	5.51	3.49	2.95	3.95	11.82	9.73	13.41
1h - 2h	N	83			83			83			83		
	Mean	29.17	27.88	30.41	28.48	27.67	29.24	18.55	17.95	19.16	76.20	73.82	78.47
	SD	6.26	5.32	7.10	3.77	3.17	4.29	3.03	2.67	3.33	9.90	8.41	11.06
2h - 3h	N	80			80			80			80		
	Mean	30.05	28.51	31.35	29.00	28.17	29.73	19.44	18.73	20.23	78.49	76.45	80.40
	SD	5.75	5.00	6.48	3.91	3.25	4.54	3.34	2.87	3.75	9.14	8.07	10.17
3h - 4h	N	59			57			59			57		
	Mean	31.53	30.02	32.95	29.21	28.27	30.18	20.14	19.45	20.77	80.61	78.53	82.73
	SD	5.08	4.20	5.84	3.58	3.02	4.11	2.70	2.32	3.00	8.59	7.27	9.72
More than 4h	N	30			30			30			30		
	Mean	32.77	30.74	34.58	29.30	28.00	30.48	19.60	18.64	20.63	81.67	78.63	84.76
	SD	5.69	4.26	6.82	3.54	2.94	4.00	2.52	1.98	2.94	8.56	7.11	9.64
Total	N	299			297			299			297		
	Mean	30.13	29.49	30.81	28.69	28.29	29.05	18.98	18.61	19.31	77.73	76.52	78.96
	SD	5.93	5.46	6.41	3.93	3.57	4.32	3.22	2.99	3.42	9.98	9.21	10.70

Supplementary Table 7. Practice hours per day: ANOVA Post-hoc tests with Bonferroni correction and CI through Bootstrapping

		Practice Organization				External Resources				Total			
		BCa 95% Confidence Interval				BCa 95% Confidence Interval				BCa 95% Confidence Interval			
(I) Practice hours per day	(J) Practice hours per day	Mean dif. (I-J)	p	Lower	Upper	Mean dif. (I-J)	p	Lower	Upper	Mean dif. (I-J)	p	Lower	Upper
Less than 1h	1h - 2h	-.615	1.000	-3.031	1.779	-1.469	.097	-	2.608	-3.077	.826	-8.07	1.92
	2h - 3h	-1.497	1.000	-3.479	.428	-	<.001	-	-1.064	-	.028	-10.39	-.33
	3h - 4h	-2.972	.095	-5.296	-.915	-	<.001	-	-1.715	-	.001	-12.88	-2.09
	More than 4h	-4.213*	.021	-6.774	-	-	.006	-	-1.141	-	.002	-14.94	-2.14
1h - 2h	Less than 1h	.615	1.000	-1.657	2.841	1.469	.097	.251	2.714	3.077	.826	-1.92	8.07
	2h - 3h	-.881	1.000	-2.716	.811	-.883	.692	-1.83 9	-.004	-2.283	1.000	-6.57	2.01
	3h - 4h	-2.357	.181	-4.129	-.677	-	.029	-	-.653	-4.409	.085	-9.12	.30
	More than 4h	-3.598*	.040	-6.042	-	-1.046	1.000	-	.051	-5.462	.085	-11.29	.37
2h - 3h	Less than 1h	1.497	1.000	-.950	3.977	2.352*	<.001	1.079	3.571	5.360*	.028	.33	10.39
	1h - 2h	.881	1.000	-1.021	2.942	.883	.692	-.147	1.885	2.283	1.000	-2.01	6.57
	3h - 4h	-1.475	1.000	-3.400	.454	-.698	1.000	-	.396	-2.127	1.000	-6.87	2.62
	More than 4h	-2.717	.301	-5.333	-.074	-.163	1.000	-	1.044	-3.179	1.000	-9.04	2.68
3h - 4h	Less than 1h	2.972	.095	.872	5.377	3.050*	<.001	1.715	4.241	7.486*	.001	2.09	12.88
	1h - 2h	2.357	.181	.193	4.580	1.581*	.029	.642	2.510	4.409	.085	-.30	9.12
	2h - 3h	1.475	1.000	-.465	3.417	.698	1.000	-.246	1.623	2.127	1.000	-2.62	6.87
	More than 4h	-1.241	1.000	-3.854	1.413	.536	1.000	-.571	1.609	-1.053	1.000	-7.23	5.12
More than 4h	Less than 1h	4.213*	-.021	1.538	6.709	2.515*	.006	1.122	3.901	8.539*	.002	2.14	14.94

1h - 2h	3.598*	.040	1.024	6.036	1.046	1.000	-.124	2.238	5.462	.085	-.37	11.29
2h - 3h	2.717	.301	.438	4.895	.163	1.000	-.986	1.320	3.179	1.000	-2.68	9.04
3h - 4h	1.241	1.000	-1.100	3.456	-.536	1.000	- 1.882	.828	1.053	1.000	-5.12	7.23

Supplementary Table 8. Practice days per week: descriptive statistics

		Practice Organization			Personal Resources			External Resources			Total		
		BCa 95% Confidence Interval			BCa 95% Confidence Interval			BCa 95% Confidence Interval			BCa 95% Confidence Interval		
Practice days per week		Statistic	Lower	Upper	Statistic	Lower	Upper	Statistic	Lower	Upper	Statistic	Lower	Upper
1 - 2 days	N	40			40			40			40		
	Mean	26.88	24.95	28.84	27.60	26.09	29.02	16.95	15.98	17.84	71.43	67.83	75.00
	SD	6.51	5.23	7.58	4.88	3.88	5.73	3.08	2.54	3.48	11.31	8.91	13.32
3 - 4 days	N	70			70			70			70	70	97
	Mean	29.54	28.07	30.97	28.91	27.89	29.91	18.47	17.79	19.10	76.93	74.45	79.49
	SD	5.81	4.92	6.57	4.24	3.66	4.73	2.82	2.44	3.17	10.26	8.88	11.44
5 - 6 days	N	112			112			112			112		
	Mean	30.83	29.65	31.95	28.60	27.91	29.22	19.28	18.69	19.87	78.71	77.07	80.31
	SD	5.74	5.04	6.45	3.52	3.09	3.89	3.04	2.70	3.34	9.14	8.07	10.17
Every day	N	77			77			77			77		
	Mean	31.35	30.14	32.56	29.19	28.36	29.97	20.05	19.22	20.88	80.39	78.30	82.35
	SD	5.39	4.61	6.16	3.61	3.01	4.16	3.37	2.77	3.85	9.12	7.86	10.33
Total	N	299	.	.	297	.	.	299	.	.	297	.	.
	Mean	30.13	29.42	30.86	28.69	28.26	29.10	18.98	18.59	19.37	77.73	76.54	78.93
	SD	5.93	5.46	6.46	3.93	3.60	4.24	3.22	2.99	3.41	9.98	9.18	10.76

Supplementary Table 9. Practice days per week: ANOVA Post-hoc tests with Bonferroni correction and CI through Bootstrapping

Practice Organization						External Resources				Total			
		BCa 95% Confidence Interval				BCa 95% Confidence Interval				BCa 95% Confidence Interval			
(I) Days of practice per week	(J) Days of practice per week	Mean Dif. (I-J)	p	Lower	Upper	Mean Dif. (I-J)	p	Lower	Upper	Mean Dif. (I-J)	p	Lower	Upper
1 - 2 days	3 - 4 days	-2.668	.124	-5.121	-.361	-1.521	.082	-2.678	-.474	5.504*	.026	-9.749	-1.537
	5 - 6 days	-3.955*	.001	-6.134	-.1859	-2.327*	<.001	-3.423	-1.246	7.280*	<.001	-11.073	-3.301
	Every day	-4.476*	<.001	-6.613	-.2247	-3.102*	<.001	-4.366	-2.061	8.962*	<.001	-13.196	-4.758
3 - 4 days	1 - 2 days	2.668	.124	.390	5.114	1.521	.082	.444	2.719	5.504*	.026	-1.249	10-315
	5 - 6 days	-1.287	.870	-2.922	.390	-.805	.530	-1.649	.063	-1.777	1.000	-4.819	1.314
	Every day	-1.808	.356	-3.753	-.004	-1.581*	.013	-2.560	-.651	-3.458	.191	-6.863	-.042
5 - 6 days	1 - 2 days	3.955*	.001	1.785	6.178	2.327*	<.001	1.188	3.503	7.280*	<.001	3.361	11.041
	3 - 4 days	1.287	.870	-.556	3.023	.805	.530	-.102	1.661	1.777	1.000	-1.005	4.552
	Every day	-.520	1.000	-2.139	1.034	-.775	.548	-1.687	.123	-1.681	1.000	-4.500	.925
Every day	1 - 2 days	4.476*	<.001	1.996	6.753	3.102*	<.001	1.888	4.544	8.962*	<.001	4.902	13.016
	3 - 4 days	1.808	.356	.075	3.652	1.581*	.013	.615	2.609	3.458	.191	.494	6.236
	5 - 6 days	.520	1.000	-.964	2.089	.775	.548	-.232	1.798	1.681	1.000	-.908	4.450

Supplementary Table 10. Expertise: descriptive statistics

		Practice Organization			Personal Resources			External Resources			Total		
		BCa 95% Confidence Interval			BCa 95% Confidence Interval			BCa 95% Confidence Interval			BCa 95% Confidence Interval		
Expertise		Statistic	Lower	Upper	Statistic	Lower	Upper	Statistic	Lower	Upper	Statistic	Lower	Upper
Student	N	58			57			58			57		
	Mean	30.57	29.13	31.83	28.25	27.15	29.29	20.21	19.38	21.05	78.95	76.32	81.48
	SD	5.25	4.56	5.79	4.20	3.38	4.93	3.31	2.82	3.71	10.09	8.68	11.29
Pre-professional	N	80			80			80			80		
	Mean	28.84	27.38	30.17	27.65	26.91	28.36	19.34	18.57	20.02	75.83	73.35	78.15
	SD	6.24	5.24	7.06	3.62	3.14	4.07	3.34	2.91	3.73	10.49	8.89	11.83
Professional	N	161			160			161			160		
	Mean	30.62	29.71	31.44	29.36	28.74	29.97	18.35	17.93	18.84	78.25	76.82	79.74
	SD	5.93	5.37	6.52	4.03	3.87	3.48	2.98	2.67	3.26	9.61	8.50	10.72
Total	N	299			297			299			297		
	Mean	30.13	29.47	30.81	28.69	28.25	29.10	18.98	18.56	19.33	77.73	76.62	78.86
	SD	5.93	5.48	6.39	3.93	3.63	4.23	3.22	3.00	3.41	9.98	9.16	10.75

Supplementary Table 11. Expertise: ANOVA Post-hoc tests with Bonferroni correction and CI through Bootstrapping

Personal Resources						External Resources			
		BCa 95% Confidence Interval				BCa 95% Confidence Interval			
(I) Expertise	(J) Expertise	Mean Dif. (I-J)	p	Lower	Upper	Mean Dif. (I-J)	p	Lower	Upper
Student	Pre-professional	.596	1.000	-.838	1.992	.869	.332	-.200	2.122
	Professional	-1.117	.188	-2.382	.090	1.853*	<.001	.848	2.811
Pre-Professional	Student	-.596	1.000	-1.886	.737	-.869	.332	-1.944	.067
	Professional	-1.713*	.004	-2.611	-.789	.983	.070	-.122	1.754
Professional	Student	1.117	.188	-.002	2.352	-1.853*	<.001	-2.749	-.955
	Pre-professional	1.713*	.004	.728	2.649	-.983	.070	-1.839	-.054

Supplementary Table 12 Age: descriptive statistics

		Practice Organization			Personal Resources			External Resources			Total		
		BCa 95% Confidence Interval			BCa 95% Confidence Interval			BCa 95% Confidence Interval			BCa 95% Confidence Interval		
Age range		Statistic	Lower	Upper	Statistic	Lower	Upper	Statistic	Lower	Upper	Statistic	Lower	Upper
18 - 25	N	96			95			96			95		
	Mean	30.16	29.15	31.12	27.88	27.12	28.64	20.28	19.62	20.86	78.27	76.12	80.35
	SD	5.17	4.50	5.83	4.00	3.44	4.53	2.89	2.57	3.14	10.02	9.04	10.90
26 - 35	N	104			104			104			104		
	Mean	29.03	27.86	30.32	27.95	27.05	28.77	18.50	17.83	19.10	75.48	73.21	77.54
	SD	6.48	5.72	7.18	4.09	3.54	4.58	3.27	2.88	3.61	11.11	9.49	12.52
36+	N	99			98			99			98		
	Mean	31.27	30.19	32.37	30.24	29.62	30.87	18.21	17.57	18.91	79.59	77.99	81.17
	SD				3.20	2.86	3.48	3.12	2.73	3.46	8.17	7.17	9.00
Total	N	299			297			299			297		
	Mean	30.13	29.47	30.81	28.69	28.25	29.10	18.98	18.56	19.33	77.73	76.62	78.86
	SD	5.93	5.48	6.39	3.93	3.64	4.23	3.22	3.00	3.41	9.98	9.16	10.75

Supplementary Table 13. Age: ANOVA Post-hoc tests with Bonferroni correction and CI through Bootstrapping

		Practice Organization				Personal Resources				External Resources				Total			
		BCa 95% Confidence Interval				BCa 95% Confidence Interval				BCa 95% Confidence Interval				BCa 95% Confidence Interval			
(I) Age range	(J) Age Range	Mean Dif. (I-J)	p	Lower	Upper	Mean Dif. (I-J)	p	Lower	Upper	Mean Dif. (I-J)	p	Lower	Upper	Mean Dif. (I-J)	p	Lower	Upper
18 - 25	26 - 35	1.127	.529	-.361	2.653	-.068	1.000	-1.219	1.124	1.781*	<.001	-.916	2.747	2.793	.141	-.103	5.744
	36+	-1.116	.557	-2.745	.561	2.361*	<.001	-3.327	1.388	2.069*	<.001	1.225	2.853	-1.318	1.000	-4.051	1.319
26 - 35	18 - 25	-1.127	.529	-2.777	-.502	.068	1.000	-1.063	1.185	-1.781*	<.001	-2.675	-.922	-2.793	.141	-5.772	-.055
	36+	-2.244*	.021	-3.939	-.502	2.293*	<.001	-3.318	1.342	-.288	1.000	-.621	1.137	-4.111*	.010	-7.218	-1.342
36+	18 - 25	1.116	.557	-.365	2.533	2.361*	<.001	1.348	3.386	-2.069*	<.001	-2.894	1.159	1.318	1.000	-1.309	4.048
	26 - 35	2.244*	.021	-430	3.856	2.293*	<.001	1.335	3.328	-.288	1.000	-1.199	.725	4.111*	.010	1.548	6.789

Supplementary Table 14. Time since first public performance: descriptive statistics

		Practice Organization			Personal Resources			External Resources			Total		
		BCa 95% Confidence Interval			BCa 95% Confidence Interval			BCa 95% Confidence Interval			BCa 95% Confidence Interval		
Years since first public concert	Statistic	Lower	Upper	Statistic	Lower	Upper	Statistic	Lower	Upper	Statistic	Lower	Upper	
1 - 9	N	48			48			48			48		
	Mean	30.06	28.34	31.86	26.75	25.38	27.95	20.73	19.90	21.58	77.54	76.13	79.67
	SD	6.13	5.13	6.95	4.47	3.63	5.18	2.88	2.42	3.24	11.22	9.48	12.90
10 - 29	N	196			194			196			194		
	Mean	29.82	28.95	30.64	28.74	28.20	29.26	18.83	18.35	19.26	77.28	75.97	78.71
	SD	5.83	5.30	6.33	3.78	3.40	4.17	3.15	2.88	3.40	10.05	8.97	11.14
30 +	N	55			55			55			44		
	Mean	31.33	29.61	33.14	30.18	29.39	30.93	17.98	17.08	18.81	79.49	77.43	81.63
	SD				3.29	2.79	3.69	3.23	2.69	3.70	8.49	7.10	9.53
Total	N	299			297			299			297		
	Mean	30.13	29.49	30.85	28.69	28.25	29.10	18.98	18.60	19.35	77.73	76.74	78.66
	SD	5.93	5.49	6.37	3.93	3.61	4.24	3.22	2.99	3.46	9.98	9.14	10.87

Supplementary Table 15. Time since first public performance: ANOVA Post-hoc tests with Bonferroni correction and CI through Bootstrapping

Personal Resources						External Resources			
						BCa 95% Confidence Interval			
(I) Years since first concert	(J) Years since first concert	Mean Dif. (I-J)	p	BCa 95% Confidence Interval		Mean Dif. (I-J)	p	Lower	Upper
				Lower	Upper				
1 - 9 years	10 - 29 years	-1.992*	.004	-3.516	-.545	1.903*	<.001	.932	2.816
	30 +	-3.432*	<.001	-5.080	-1.846	2.747*	<.001	1.574	3.987
10 - 29 years	1 - 9 years	1.992*	.004	.699	3.271	-1.903*	<.001	-2.810	-.942
	30+	-1.440*	.042	-2.451	-.376	.845	.233	-.060	1.782
30 +	1 - 9 years	3.432*	<.001	1.996	4.870	-2.474*	<.001	-3.978	-1.584
	10 - 29 years	1.440	.042	.502	2.364	-.845	.233	-1.785	.069

Supplementary Table 16. Practice Hours per day X Expertise: chi-square

Practice hours per day	Expertise		
	Students	Pre-Professional	Professional
Less than 1 hour	5	10	33
	-1.7	-1.0	2.2
1 - 2 hours	9	26	48
	-2.3	1.1	.8
2 - 3 hours	18	24	38
	.8	.8	-1.4
3 - 4 hours	18	15	26
	2.4	-.2	-1.7
More than 4 hours	8	5	17
	1.1	-1.3	.3

Supplementary Table 17. Mean for scores in all factors.

		Practice Organization	Personal Resources	External Resources	Total
N	Valid	299	297	299	297
	Missing	1	3	1	3
Mean		30.13	28.69	18.98	77.73
SD		5.93	3.93	3.22	9.98
Minimum		10	14	10	40
Maximum		40	35	25	100