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DOSSIER "Social Cognitive Theory and Higher Education: Theoretical, Empirical, and Intervention-Based Contributions"

Exploring Self-Regulation, Self-Efficacy, and Perceived Importance in Music Learning and Practice Through KAPA

Explorando autorregulação, autoeficácia e importância percebida no aprendizado e prática musical por meio do KAPA

Explorando la autorregulación, la autoeficacia y la importancia percibida en el aprendizaje y la práctica musical a través de KAPA

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Abstract:
This study adopts an idiographic approach with the aim of understanding key facets of individuals' perceptions of their music learning and how strategic learning behaviors are impacted by self-beliefs and perceptions. The software SeeDegree, which automates the established personal assessment framework (KAPA), is used to collect both qualitative and quantitative data focusing on participants' perceptions of self, including their self-declared strengths and weaknesses, perceived self-efficacy, and perceived importance of behaviors specifically related to self-regulation in music learning. The perceived beliefs of individuals are contextualized in relation to the importance placed on various challenging situations commonly encountered in learning and preparing for a performance. Results present a narrative for understanding music learning in a more holistic, person-centered way, and provide a deeper level of understanding of the beliefs and perceived importance (in this study, prioritised value of SRL behaviors) held by participants about their music learning. Specific situations where there was a significant difference between the self-efficacy and the perceived importance of strategies or situations are highlighted and discussed. The results of one participant are drawn out as an exemplar of the need for teachers to explore individual differences in learners.
Keywords: Self-efficacy, self-regulated learning, KAPA, music practice, idiographic assessment

Resumo

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Este estudo adota uma abordagem idiográfica com o objetivo de compreender facetas fundamentais das percepções dos indivíduos sobre seu aprendizado musical e como comportamentos estratégicos de aprendizagem são influenciados por crenças sobre si mesmos e por suas percepções. O software SeeDegree, que automatiza a estrutura de avaliação pessoal estabelecida (KAPA), é utilizado para coletar dados qualitativos e quantitativos centrados nas percepções dos participantes sobre si mesmos, incluindo seus pontos fortes e fracos autodeclarados, a autoeficácia percebida e a importância atribuída a comportamentos especificamente relacionados à autorregulação no aprendizado musical. As crenças dos indivíduos são contextualizadas em relação à importância atribuída a diversas situações desafiadoras, comumente encontradas durante o aprendizado e a preparação para uma performance. Os resultados apresentam uma narrativa para compreender o aprendizado musical de maneira mais holística e centrada na pessoa, oferecendo uma compreensão mais profunda das crenças e da importância percebida (neste estudo, o valor prioritário atribuído a comportamentos de autorregulação da aprendizagem) que os participantes possuem sobre seu próprio processo de aprendizado musical. Situações específicas, nas quais houve uma diferença significativa entre a autoeficácia e a importância percebida de estratégias ou situações, são destacadas e discutidas. Os resultados referentes a um participante são apresentados como exemplo da necessidade de os professores explorarem as diferenças individuais dos aprendizes.

Palavras-chave: *Autoeficácia, aprendizagem autorregulada, KAPA, prática musical, avaliação idiográfica.*

Resumen

Este estudio adopta un enfoque ideográfico con el objetivo de comprender aspectos clave de la percepción que tienen los individuos sobre su aprendizaje musical y cómo las creencias y percepciones personales influyen en las conductas estratégicas de aprendizaje. Se utiliza el software SeeDegree —que automatiza el marco de evaluación personal establecido (KAPA), para recopilar datos tanto cualitativos como cuantitativos centrados en la autopercepción de los participantes; esto incluye sus fortalezas y debilidades declaradas, su autoeficacia percibida y la importancia que atribuyen a conductas específicas relacionadas con la autorregulación en el aprendizaje musical. Las creencias de los individuos se contextualizan en función de la importancia otorgada a diversas situaciones desafiantes que suelen surgir durante el aprendizaje y la preparación de una interpretación musical. Los resultados ofrecen una narrativa para comprender el aprendizaje musical de una manera más holística y centrada en la persona, proporcionando una comprensión más profunda de las creencias y la importancia percibida (en este estudio, el valor prioritario asignado a las conductas de aprendizaje autorregulado) que los participantes tienen sobre su propio proceso de aprendizaje. Se destacan y analizan situaciones específicas en las que se observó una diferencia significativa entre la autoeficacia y la importancia percibida de determinadas estrategias o situaciones. Asimismo, se presentan los resultados de un participante concreto como ejemplo de la necesidad de que los docentes exploren las diferencias individuales de los estudiantes.

Palabras clave: *Autoeficacia, aprendizaje autorregulado, KAPA, práctica musical, evaluación ideográfica.*

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Exploring Self-Regulation, Self-Efficacy, and Perceived Importance in Music Learning and Practice Through KAPA

Learning effectively is a primary concern for any learner or teacher. Music learning is complex and requires an elegant combination of fine motor control and detailed cognitive understanding to realize abstract concepts to create expression through sound. It places a host of multifaceted demands on the human neurological system (Altenmüller & McPherson, 2007) and is impacted by a constellation of unique self-perceptions and contextual elements. As students navigate their learning processes, they rely on information and instruction to understand the mechanics and musical nuances of their instrument. This can originate from books or recorded media, however often learners gain key skills at the outset of their musical journey guided by a teacher or parent (McPherson et al., 2017).

Daniel (2006) questions the balance of responsibilities and interactions between the teacher and student, asking if the student should rely on the teacher or be more independent in their thinking. Teachers are aware of the need to develop their learners, and the impact of critical and strategic thinking on learner efficiency and success is well documented across academic subjects (Weinstein et al., 2011). Music students spend hours of independent learning time, as the contact time with a teacher in private music lessons is typically one hour per week, and in school settings this can be as short as 15 minutes per week. McPherson (2005) analyzed children's skill development in their instrumental learning and stressed the need to understand how children apply specific strategies to independent learning and thinking. Adult learners have a slightly different perspective as they have chosen to learn music beyond any imposed school learning requirements (McPherson, Davidson, & Faulkner, 2012). Boon (2024) stresses the need for teachers to take an individualized approach to teaching allowing for a 'shared knowledge construction' to develop skills leading to autonomy, enabling lifelong learning. Effective musical learning relies on a good use of time, which requires strategic thinking and behavior. When students become "metacognitively, motivationally, and behaviorally active participants in their own learning process" they begin to take responsibility for their learning and this is the beginning of self-regulation (Zimmerman, 1986, p. 308).

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Self-Regulated Learning (SRL) and Self-efficacy

Self-regulated learning (SRL) theory involves "how students personally activate, alter, and sustain their learning practices in specific contexts" (Zimmerman, 1986, p. 307). Zimmerman's (1986, 2000) theory of SRL moved beyond his contemporaries focusing on behavioral models (Mace et al., 1989) to align with Bandura's (1986) social cognitive theory and include a person's internal thoughts, their environment, and their actions. Zimmerman's SRL theory focuses on the application of strategic behavior through metacognition and critical thinking to optimize learning conditions.

In an early study on academic learning, Zimmerman and Martinez-Pons (1986, p. 618) defined ten named categories of SRL strategies: self-evaluation, organizing and transforming, goal-setting and planning, seeking information, keeping records and monitoring, environmental structuring, self-consequences, rehearsing and memorizing, seeking social assistance, and reviewing records. These were defined within specific academic contexts for high school students. (Two of these were split into sub-categories relevant to high school students, and the research reports 14 categories. The category 'seeking assistance' was split into peers, teachers, and adults, and 'reviewing records' was split into tests, notes, and textbooks). For example, for the behavior 'self-consequences' teachers were asked if they noticed their students using "statements indicating student arrangement or imagination of rewards of punishment for success or failure, e.g. 'If I do well on a test, I treat myself to a movie'" (p. 618). Subsequently, Zimmerman and Martinez-Pons (1988) validated the construct of SRL through teacher observations and student reports. To gather the teacher reports, the SRL strategies were grouped into practical contexts, and times when the students would use them. These SRL strategies did not form a singular questionnaire but were considered as separate strategic behaviors.

As Zimmerman's SRL theory developed it was researched across domains beyond academia. Zimmerman and Risemberg (1997) presented six core dimensions of SRL which were expanded to roughly align to the questions why (motive), how (method), when (time), what (behavior), where (physical environment), and with whom (social environment). These dimensions are contexts where learners might exhibit one or more SRL behaviors (McPherson & Zimmerman, 2002, p. 328). McPherson and Renwick (2001) later adapted the six dimensions as a framework to investigate SRL in music, changing 'behavior' to 'performance outcomes.'

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This list of dimensions is not exhaustive; for example Zimmerman and Schunk (2012) later introduce motivation as a dimension in the chapter title: "Motivation: An essential dimension of self-regulated learning.".

Zimmerman (2002) recognized the link between SRL and "several underlying beliefs, including perceived efficacy and intrinsic interest" (p. 66). Perceived self-efficacy focuses on a person's self-beliefs about their capabilities to successfully carry out a criterial task (Bandura, 1977, 1986). Ritchie and Williamon (2012) explored the relationship of SRL to self-efficacy using 10 overall categories of SRL behavior adapted from Zimmerman and Martinez-Pons (1986) inventory of 15 strategies. These were related these to self-efficacy beliefs using the Self-efficacy for Musical Learning and Self-efficacy for Musical Performing Scales.

Historically, self-efficacy has been measured by different methods. Originally, in Bandura's studies, he and colleagues used a single question to assess self-efficacy and directly asked participants in treatment conditions if they could do specific tasks to do with their phobias of snakes or spiders (Bandura, 1977; Bandura, Adams, & Beyer, 1977; Bandura, Reese, & Adams, 1982). As self-efficacy became more widely researched in academic (non-clinical treatment settings), questionnaires became a popular method to research the construct. Researchers created a vast range of questionnaires, some of which assessed self-efficacy and some assessed something more general, akin to a universal trait and not self-beliefs about capabilities to carry out a specific task (see Sherer & Maddux, 1982; Schwarzer & Jerulasem, 1995). However, Bandura (2006, 2023) specified self-efficacy was a criteria based task-specific self-referent thought and not a general competency; it is not "a static entity that people 'have' but as a dynamic cognitive process that people 'do'" (Cervone, 2000, p. 32). As such, Bandura gives advice to those creating scales that they should be task specific and measure gradations of challenge through multiple questions (Bandura, 2006). In his final publication, Bandura (2023) highlighted examining a general (non-task specific) self-efficacy through "omnibus" items lacks the specificity required to assess a task in a particular domain of functioning (p. 73).

In relation to SRL, Zimmerman and Martinez-Pons (2012) suggested future research should avoid using generalised self-efficacy as a measure and researchers should be aware that the accuracy of self-efficacy judgments to do with self-regulated learning "improves with age" (p. 201).

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Varela et al., 2016 conducted a systematic review of studies following Zimmerman's SRL theory in music from 1999-2011 and found SRL studies to focus most on SRL instruction. Another systematic review was undertaken on studies in music between 2001-2023 and found 48 studies on advanced musicians included a range of observational methods, interventions, and questionnaires (dos Santos Silva and Marinho, 2025). Although observational methods and case study approaches were undertaken, a more holistic methodology to balance and link the qualitative and quantitative approaches could give a new perspective on SRL beliefs and behaviors.

Holistic Understanding: KAPA

Self-regulation is not an independent variable; it is interrelated with other aspects of the self (Zimmerman, 2002). Self-efficacy beliefs, self-beliefs about capabilities to carry out a criterial task (Bandura, 1977), can be seen to impact all aspects of SRL, from forethought, to volition, to reflection (Pajares, 2012; Zimmerman, 2002). Both intrinsic motivation and self-efficacy were shown to have a significant effect on SRL in academic settings (Chen & Sukying, 2024; Garcia & Pintrich, 1991). Campbell et al. (2002) theorized Bandura's concept of agency to be an embodiment of SRL. Early self-efficacy literature came to understand both skill and belief were necessary for accurate self-efficacy judgments (Collins, 1982). Self-efficacy literature has also recognized both self-efficacy and the value of a task's outcome (the outcome expectancy) (Pajares, 2012) are related to SRL. It is therefore important for researchers to examine SRL in a holistic manner. Strictly nomothetic approaches provide a limited view of SRL and other approaches are needed to more fully address its idiographic nature.

The Knowledge and Appraisal Personal Architecture (KAPA) provides an idiographic, holistic approach that also highlights the participant's voice (Cervone 2004, 2023; Ritchie & Sharpe, 2022). Within this method individuals describe their personal strengths and weaknesses in free text and then consider the impact of these self-declared strengths/weaknesses on contextualised questions representing challenging situations they might encounter as they carry out a given task (for example, music practice). KAPA also includes self-efficacy judgements, where participants are asked to rate their confidence to successfully engage with each of the challenging situations presented. These situations are presented as questions nested within related domains.

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For example, assessing SRL with the KAPA methodology means that the SRL behaviors become the challenging situations (questionnaire items) and dimensions or categories of SRL become the related domains. KAPA is not an instrument, but a method, and the questions used with this method, whether about SRL in music or another context (working in a tech office for example) are always specific to the environment being studied. This methodology allows researchers to see trends and to highlight individual differences through the idiographic portraits it produces (Cervone, in press/2027).

Aims

This study adopts an idiographic approach with the aim of understanding key facets of individuals' perceptions of their music learning and how SRL behaviors are impacted by self-beliefs and perceptions.

Method

Participants

A sample of 37 adult musicians voluntarily reported on their perceptions and self-beliefs as related to aspects of their musical learning practices. The sample comprised adults (over 18 years of age) who played a range of instruments including guitar (7), percussion (3), piano (2), harmonica (1), flute (4), violin (4), viola (1), cello (2), bass (2), viol (1), saxophone (1), clarinet (1), trumpet (1), euphonium (1), voice (5), organ (1), and their experience ranged from being an adult beginner to someone who played for 55 years. The mean experience of this sample was 21.81 years. Participants reported their average practice time per week, which ranged from less than one hour to 35 hours per week, with a mean practice time of 9.14 hours per week.

Materials

Ethical approval for this study was gained from the Research Ethics Committee at the University of Chichester, Approval number 2324_56. The SeeDegree software package was used to compile an online questionnaire. This software, which incorporates, expands on, and

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automates Cervone's (2004, 2023) KAPA model of personality architecture, was previously devised collaboratively by the author and Cervone as commercially available software (See SeeDegree: https://seeyescorp.com/seedegree/). The version of SeeDegree used in this research study collected the following:

Self-efficacy judgements and importance ratings for 14 specific SRL learning behaviors, including the 10 SRL behaviors included in research by Ritchie and Williamon (2012) and the following four additional behaviors focusing on music practice:

Practice effectively (know what methods to use)

Manage your time effectively in practice sessions

Find enough time to practice

Manage social influences and distractions to practice effectively

The SRL behaviors were grouped into six SRL dimensions. The practice of grouping SRL behaviors into dimensions drew upon previous research. McPherson and Zimmerman (2002) and McPherson and Renwick (2011) studied SRL in terms of dimensions (as opposed to specific behaviors). Miksza (2012) also used this multidimensional framework when developing his questionnaire, the Self-Regulated Practice Behavior for Beginning and Intermediate Instrumental Music Students.

The present study attempts to use groupings to connect studying individual SRL behaviors (Ritchie and Williamon, 2012) and SRL dimensions (McPherson and Renwick, 2011). The categories here reflect, but do not replicate, the dimensions of McPherson and Renwick (2011). For example, in the present study the category 'assistance' includes both seeking assistance from social and non-social sources. The physical environment was not included as a separate category, but the SRL behavior: "Select and rearrange the physical setting (practice environment) to facilitate learning" was included within the 'behavior' category. 'Reflection' was added to capture reflective thought specifically to do with keeping and reviewing records of events to do with practice.

To replicate Bandura's original methods of self-efficacy investigation, a single-score rating of self-efficacy for music practice was collected through the question: How do you rate your confidence to successfully manage your music practice? (on a scale of 1-100, where 100 is completely confident).

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Participants also rated their self-efficacy for each of the SRL behaviors (framed as confidence to successfully carry out each SRL behavior) on a 1-100 scale.

The perceived importance of each SRL behavior for the individual's music learning was also rated on a 1-100 scale.

Participants described their personal strengths, weaknesses, and what motivates them to practice with free-text responses, and then used a 5-point Likert scale to rate the relevance of their strength/weakness to each of the SRL behaviors.

Yes/no questions about perceptions of strengths/weaknesses were viewed as Interpersonal, Internal, or Task-oriented. This is done in the SeeDegree software by asking whether participants are aware of their strengths/weaknesses: impacted their interpersonal interactions, were outwardly visible to others, and whether participants were aware of using these in their music practice.

Participants also stated their musical instrument/specialism, how many years they have played, and how many hours per week they practice.

No personally identifiable information or protected characteristics were collected in this research.

Procedure

Participants were recruited to participate in a voluntary research study about their music practice via an invitation shared through online networks. Participants were not paid or rewarded in any way, and in advance of participation participants were told "It is expected that this research project will not benefit you directly other than to clarify your opinions. The outcomes of the research, however, may benefit wider audiences (other musicians, teachers) and it is of value to have your opinions." They had no direct contact with the research team and completed the questionnaire online in their own time. On submission of the online form, as part of the SeeDegree software each participant received a 4-page analysis of their results*. Participants had both the right to download their data and the option to withdraw or delete their data at any point in the study. Sixty-six accessed the questionnaire and 37 completed the survey. (*an example of the personal results can be seen in the supplemental material).

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Results

Self-efficacy and Importance

The overall mean SRL scores for importance and self-efficacy for each of the 14 self-regulated learning behaviors and a stand-alone score for self-efficacy for 'managing your practice' (practicing) are shown in Table 1, in order of their importance scores. These scores reveal general trends, however there is much more information to be gained by considering relationships of scores within the individual participant perspectives.

Table 1:

Mean Importance and Self-efficacy scores for each of the Self-regulated Learning (SRL) behaviors; and the self-efficacy for practicing (single question) score.

SRL Behavior	Importance scores *(M)*	*(SD)*	Self-efficacy scores *(M)*	*(SD)*
Practice effectively (know what methods to use)	79.92	17.09	64.73	22.15
Manage your time effectively in practice sessions	75.87	17.65	60.76	21.30
Find enough time to practice	75.86	18.94	50.57	27.74
Seek information from non-social sources (recordings, concerts, books or scores)	71.84	21.34	72.41	21.78
Manage social influences and distractions to practice effectively	69.51	21.43	64.05	24.93
Rehearse and make an effort to memorize through practice	66.18	26.00	58.41	27.38
Seek assistance from peers, teachers or others	64.34	25.36	59.81	28.00
Evaluate the quality of progress or learning	63.43	22.01	56.56	21.94
Select and rearrange the physical setting (practice environment) to facilitate learning	64.14	26.84	71.08	20.93
Set goals and plan for the sequencing, timing, and completion of activities and events	59.74	22.85	50.65	24.40
Rearrange materials to improve learning (changing the order of passages within a piece or the inclusion of etudes or other related musical material)	59.33	27.32	66.08	20.26
Review records of past learning, performances, or exams, notes or texts	46.78	30.82	46.87	27.11
Keep records of events or results to do with your practice	39.20	29.56	45.49	25.33
Arrange or imagine a reward/punishment for success/failure	30.36	29.14	39.38	31.36
Self-efficacy for Practicing (single question)			61.94	21.94

The SRL behavior rated as most important had to do with effective strategy use in practicing. Arranging or imagining rewards or punishments had a notably low importance.

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Individual differences are immediately apparent as six people stated this behavior was not part of their life, reflecting a more developed sense of intrinsic motivation. Comments explaining their motivation is based on "the enjoyment of playing" and that "playing gives its own satisfaction and pleasure" evidence an internal drive. Figure 1 presents the mean importance and self-efficacy scores for each of the SRL behaviors shown grouped by connected lines into the six SRL dimensions examined in this study. Even when SRL behaviors are grouped within a dimension, unless demonstrating aspects of the *same* behavior, as with the two items about keeping and reviewing records in the dimension of reflection, there are differences in scores.

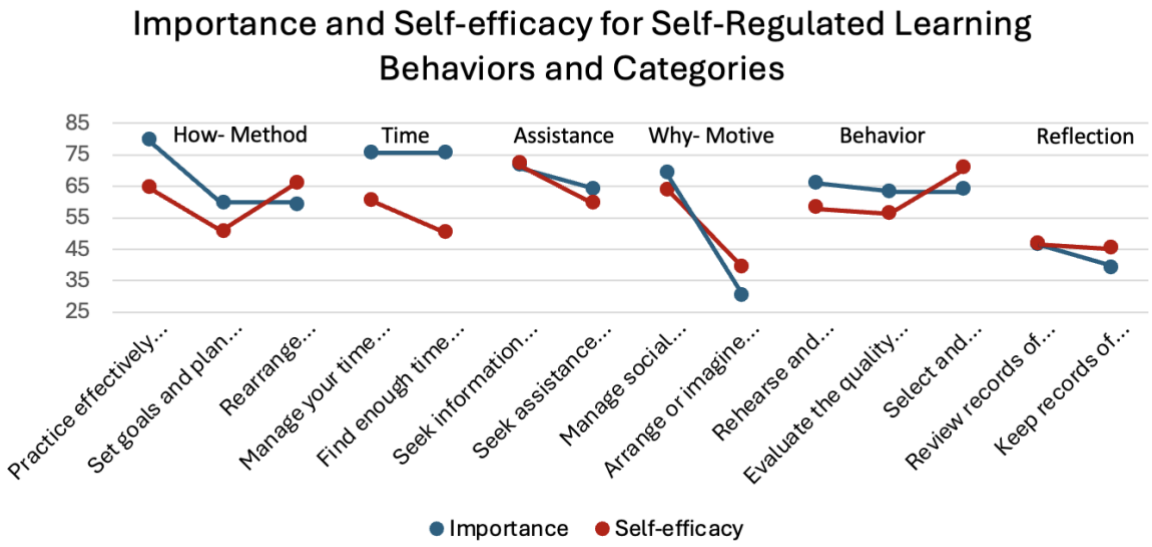


Figure 1

Importance and self-efficacy for self-regulated learning behaviors as grouped by connected lines into categories

Strengths and weaknesses

Participants' self-declared strengths and weaknesses ranged from short descriptions relating to interaction with others such as "thinking of others before speaking" (strength) to internal self-judgments - "slothful" (weakness), to a strength or weakness pointing specifically to the task of practicing: "lack confidence in groups, lack confidence in performing in front of others".

Participant free-text descriptions of their personal strengths/weaknesses were aligned with the categories seeded in the yes/no questions: Interpersonal, Internal, Task-oriented.

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Strengths labelled *Interpersonal* related to interaction or communication (e.g. "social confidence", "friendliness", "thinking of others before speaking"); *Internal* focused on aspects of cognition, and emotion (e.g. "ability to organise", "empathy", "calm under pressure"); and *Task-oriented* specifically mentioned something to do with technical, learning (e.g. "desire to succeed", "willingness to learn", "being analytical about skills and learning"). The frequency of participants presenting with interpersonal, internal, or task-oriented strengths/weaknesses and the perceptions of how the strengths/weaknesses are manifest in their everyday life and in their music practice can be seen in Table 2. Most participants were aware of using both their strength and weakness in their music practice.

Table 2

Strength and Weakness categories, and their perceived applications

	Interpersonal	Internal	Task-oriented	Impacts with others	Externally visible	Conscious of use in practice
Strength	11	17	9	83.8%	67.6%	73.0%
Weakness	10	23	4	83.8%	48.6%	83.8%

Participants reported their strength/weakness to have an impact on SRL behaviors across categories. Table 3 shows the mean confidence and importance for SRL behaviors influenced positively by strengths and negatively by weaknesses within each SRL category. When a strength has a positive impact on a behavior, the participant perceives the strength to actively help them carry out the SRL behavior, whereas when the weakness has a negative impact, the weakness actively hinders a participant's success with the SRL behavior.

Table 3

Mean Importance and Self-efficacy scores in SRL behaviors where strength/weakness have a positive/negative impact, listed in order of SRL category

	Strength (positive impact)				Weakness (negative impact)			
	Importance		Self-efficacy		Importance		Self-efficacy	
SRL Category	*(M)*	*(SD)*	*(M)*	*(SD)*	*(M)*	*(SD)*	*(M)*	*(SD)*
Time	76.61	16.96	59.00	17.30	76.80	14.89	54.78	15.71
Assistance	76.37	16.63	74.98	19.25	65.74	27.12	62.16	30.68
Behavior	72.70	20.74	65.98	19.40	64.65	24.67	54.78	23.32
How- Method	69.27	20.42	61.71	21.24	60.97	22.35	50.17	22.29
Why- Motive	65.91	24.44	68.48	19.26	60.74	20.11	46.41	29.24
Reflection	60.87	28.84	64.23	17.96	43.32	25.90	31.50	25.01

The scores shown in Table 3 gain a layer of meaning when contextualised in terms of the mean self-efficacy and importance scores from across the sample. Figure 2 shows these

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scores plotted within the quadrants of high and low self-efficacy and importance, as drawn by the sample mean scores. Examining the SRL categories through the lens of these quadrants allows understanding to emerge as alignment or skewness between an individual's perceived importance and self-efficacy becomes visually apparent. For example, the SRL categories plotted in the upper right quadrant demonstrate a high self-efficacy and high perceived importance, whereas those in the lower left quadrant demonstrate a lack of self-efficacy and a lack of perceived importance. The upper left quadrant shows a lack of perceived importance, and the lower right shows importance, but a lack of self-efficacy.

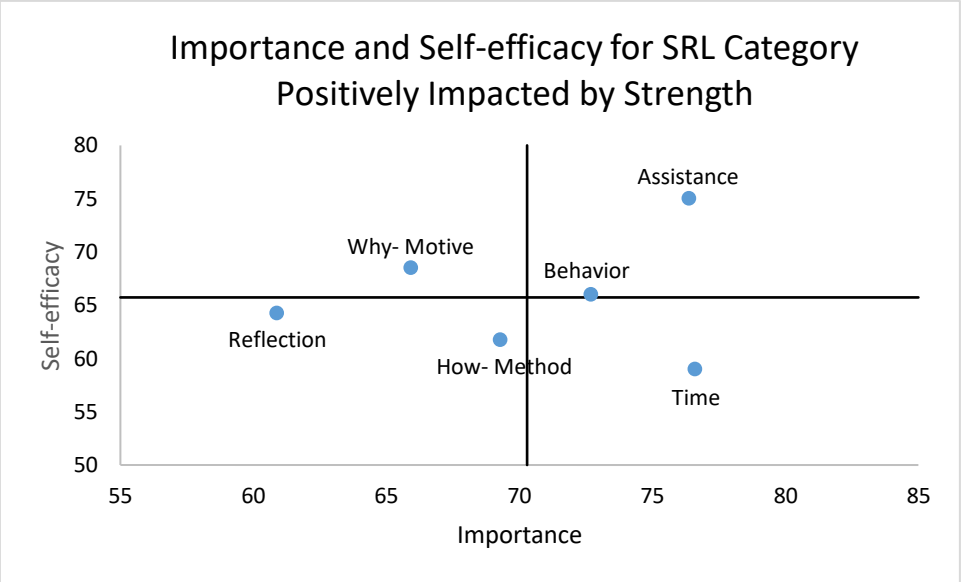


Figure 2

Self-efficacy and Importance for the SRL categories positively impacted by self-declared strength, contextualised within quadrants defined by mean sample self-efficacy (65.73) and importance (70.29) scores where strength positively impacted SRL behaviors.

Although to this point, results have been presented for the sample, the KAPA method specifically allows for a holistic individual portrait of individuals. This is illustrated below by exploring one participant.

Interestingly, there was only one person (Participant 13469) whose self-declared strength was specifically task-oriented who reported not being aware of using their strength in their music learning. This participant described their strength as being 'commitment to a task' and had played their instrument for 38 years, so they were not a beginner. However, there was not an active awareness of using their strength, and their scores across all self-regulated learning behaviors were consistently low. Most of the importance scores are lower than their respective

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self-efficacy scores, and with a low perceived importance for self-regulated learning dimensions, it was not surprising that this person was one of those who practiced less, at 3 hours a week. The scores for Participant 13469 are presented in Figure 3.

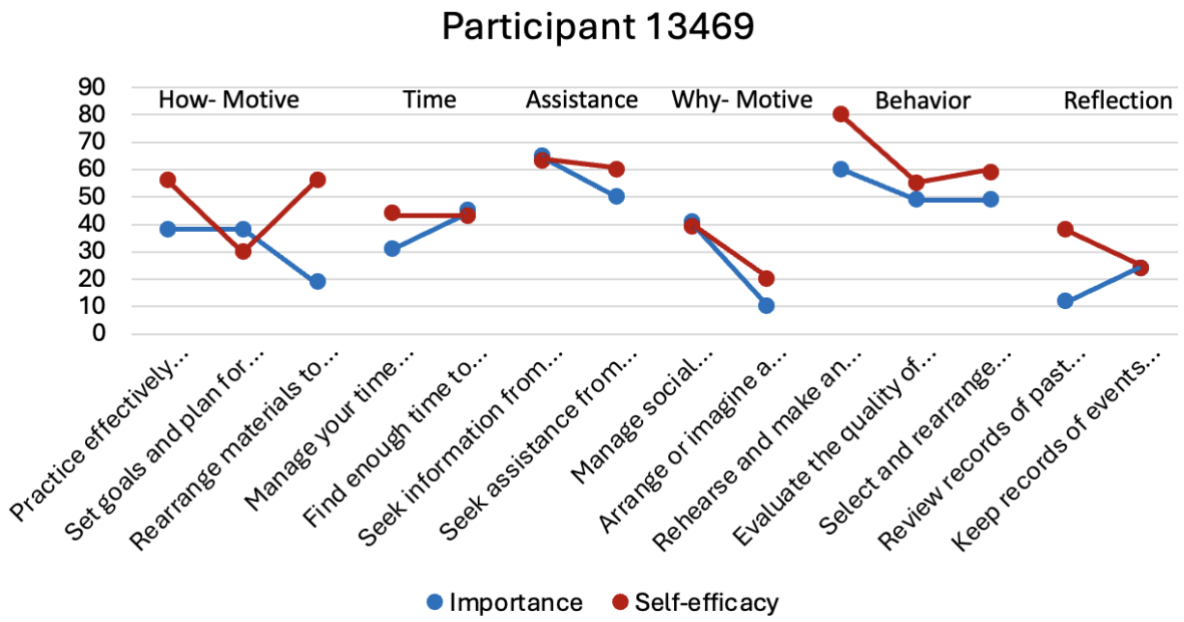


Figure 3

Self-efficacy and Importance scores from Participant 13469 for the 14 SRL behaviors, shown grouped by SRL category.

The practical impact of having a task-related strength and being unaware of using it is further contextualised when presented with reference to the quadrants defined by the mean sample scores for self-efficacy and importance. This shows how the lack of awareness drags the scores far below the average. There are no SRL dimensions where self-efficacy and importance are both robust. Either perceived importance of the SRL behavior is lacking or both importance and self-efficacy are lacking. (See Figure 4)

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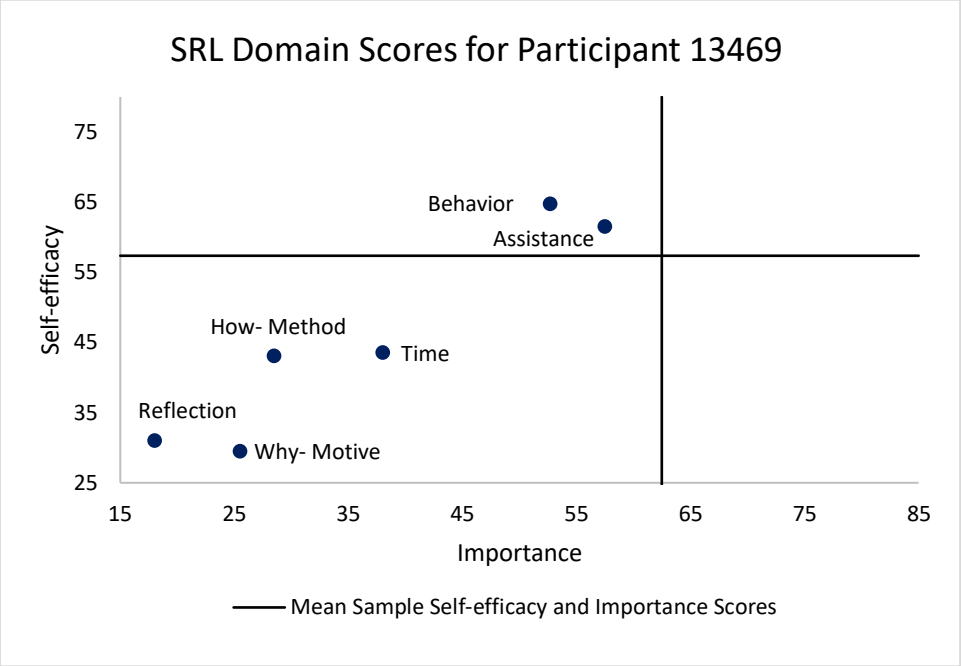


Figure 4

Self-efficacy and Importance scores from Participant 13469 for the SRL categories, contextualised by quadrants defined by the sample mean self-efficacy (57.36) and importance (62.48) scores.

Discussion

This study gathered a snapshot into views about their strengths, weaknesses, and self-efficacy and perceived importance of music practice and associated SRL behaviors. Measuring any one of these variables alone is not enough to give a full picture of an individual's agency. Examining the relationships between several variables, in this case self-efficacy, importance, and the strength/weakness provide a more holistic insight into persons and their individual differences.

Self-efficacy can be assessed directly in reference to a task with a single question, as in Bandura's original research studies (Bandura, 1977; Bandura, Adams, & Beyer, 1977; Bandura, Reese, & Adams, 1982), and here with the single self-efficacy for practicing score. Table 1 demonstrates large differences between the single-score rating and separate scores for specific tasks within the SRL inventory. Overall self-efficacy for practicing does not in itself convey the granularity of the 14 SRL behaviors, and there is no way to ensure that each participant shares the exact same concept of SRL in music practice. Assessing SRL for the individual behaviors

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allows for specificity, although does not provide a single composite score for SRL. No single behavior adequately represents SRL. The original Zimmerman and Martinez-Pons studies presented a SRL interview schedule, and not a 'scale'. Relevant SRL behaviors may differ in different domains, and even within domains. In music the types and application of SRL used by jazz musicians may vary considerably to classical musicians, particularly with reference to scores and improvisation. McPherson (2005, 2009) and McPherson and Renwick (2001) have also shown SRL to vary between beginner and advanced musicians, particularly with reference to environmental structuring and parental involvement. The diversity and complexity surrounding and influencing SRL makes it extremely challenging to create a relevant comprehensive SRL scale.

The categories of SRL in this study differed from previously published dimensions by McPherson and Zimmerman (2002) and McPherson and Renwick (2011). For the present study environmental structuring was included within the bahaviour category instead of having a separate physical environment category. McPherson and Zimmerman (2002, p. 338) note: "Obviously, some students have little control over the environment where they practice." This is also true of many university practice rooms, where pianos and other furniture and lighting are fixed. The possibility existed that this adult sample could score very low in a dimension about the physical environment, not because they were not actively using SRL strategies, but because restructuring the physical environment might not be considered relevant (or possible) for them.

Researchers have used various questions similar to an inventory to create a self-efficacy for SRL scale (see Zimmerman et al, 1992), and these should be treated with great caution. As seen with an inventory, one could argue that questioning different behaviors represents different tasks. It was also for this reason the SRL scores here were not summed to create a score. Unless a self-efficacy SRL scale questions aspects of the task, it may not be a true reflection of beliefs about SRL as a whole. When creating self-efficacy scales gradations of *the task* should be included, not questions about several different tasks (Bandura, 2006; Bong, 2006). Bandura did not create a scale for snake phobic self-efficacy with a composite score. In his 1977 research he asked a single question about a series of very specific tasks ranging from whether participants could be in the same room as a snake to whether they could allow the snake "to freely crawl in their laps" (p. 205).

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Results showed a marked discrepancy between levels of importance and self-efficacy in the category of Time for this sample. (see Figure 1) In this category the low self-efficacy scores for this sample are unlikely to stem from a lack of knowledge of time management behaviors, as an awareness of these is commonplace for an adult population, but instead from confounding factors not represented or measured here. The life and work-circumstances of this adult sample could add unknown time-constraints to their music practice and impact their self-efficacy to manage time for music practice.

Perceptions of personal strengths and weaknesses, importance, and self-efficacy judgements interact to impact that person's readiness to engage with deeper learning, self-regulation, and learning strategies. When discussing self-efficacy for strategy use, Cervone (2000) noted people are likely to have distinct gradations of self-efficacy for different aspects of a task (p. 46). Granularity of the individual's self-reflective perspective of their strengths/weaknesses, SRL, and self-efficacy combine to form a holistic portrayal of the person within the context of their practices. This is essential information for those guiding learning, especially initially for teachers. As individuals move toward self-regulation and teaching themselves this multifaceted holistic view will inform and enhance their learning practices.

Self-declared strengths were not treated as evidence of diagnosing a framework of latent-variable traits like other commonly used measures (see Goldberg, 1993). The categories listed in Table 2 highlight individuals' awareness of the usefulness and impact of their strengths/weaknesses in daily life and in their music practice. This does not, however, equate with or suggest a certain type of person or personality. Each participant presents a unique story, and no one label or score adequately represents an individual.

Participant 13469 did not knowingly use their strengths in music practice, and this transpired in low scores overall. Besides low scores in general, perceived importance was lower than their self-efficacy scores for 9 of the 14 SRL behaviors. For Participant 13469 the dimensions of Behavior and Assistance, both core to any engagement with music learning, were the only categories with above average self-efficacy scores. These two categories represent some of the first things one does when learning an instrument: one engages with playing the instrument (practice as Behavior), and with instruction (learning through Assistance), by a teacher, books, or some other information source. Other categories which involve deeper thinking through reflection and regulation of oneself all were sub-average for Participant 13469,

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with both low judgements of self-efficacy and importance, and fell in the lower left quadrant in Figure 4.

In the overall sample, the mean self-efficacy and importance scores went up by over 7% when strengths were reported to have a positive impact on the SRL behaviors. It is not yet clear how the weakness impacts behaviors. Previous research has shown a complex relationship between weaknesses which could manifest through maladaptive behaviors and tasks. For example, Ben-Eliyahu and Linnenbrink-Garcia (2013) found repression (e.g. worry) related to negative feelings toward academic courses and drew learners away from their learning, however in the case of students who used the adaptive behavior of reappraisal to re-interpret emotionally charged experiences, they tended to approach challenging situations with more resilience and positivity. With a sample of adult musicians, Peistaraite and Clark (2020) confirmed both engaging more with reappraisal and less with repression had a positive impact on SRL use. Wherever a weakness is perceived to have a negative impact on the SRL, it would be specifically useful for both the student and teacher to be aware of this. Teachers could scaffold appropriately to support learning and teach SRL behaviors in a targeted way, building on strengths, channelling any positive effects of weakness and working to avoid negative influence of the weaknesses.

This study gathered both qualitative and quantitative data, following the idiographic approach outlined by the KAPA method. Using a nomothetic approach to interpret data gathered with methodologies akin to the KAPA method can show trends but does not provide absolute rules as within any grouped variable, there will be individual differences.

Examining means and categories of data allow teachers to isolate areas needing attention within the cohort, and then by examining individual results, targeted interventions to improve individuals' SRL can be developed. Similar to Allport's (1937) belief that traits were not latent variables, but existed on an individual level, musicians' self-efficacy and SRL behavior also exist on an individual level. To examine individual changes in a population as a network, idiographic assessments (using this or a similar KAPA-based methodology) would need to be repeated over time. The present results illustrate a snapshot of possible trends in the sample and explore an individual's differences through Participant 13469. The analysis of individual idiographic portraits has direct implications for the individual learner and teacher.

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Boon (2024) highlights the importance of teachers aiding students in developing self-regulation to sustain autonomous and distance learning in our tech savvy post-COVID society. Considering both self-efficacy and importance provides a more robust picture of a learner's readiness to engage with SRL. In a real-world context, individual results should be used as a reflective tool to guide and improve a student's SRL strategies. Using the methods presented in this research can help teachers target which SRL behaviors need more attention and scaffolding from the teacher, both through the strength/weakness statements and the difference between importance and perceived self-efficacy. Further research should consider a variety of different learner scenarios to build a better understanding of how these variables interact for individuals.

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