Can levels of self-efficacy amongst pianists be raised using training methods derived from gymnastics?

Benjamin Shepherd, Trinity College of Music, London, UK, 2010

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The study investigated changes in self-efficacy levels amongst pianists incorporating training methods derived from gymnastics in to their instrumental practice over a three-week period.

Previous music-specific self-efficacy research had explored the role of self-efficacy within musical education and performance, however none had explored the influential capacity that practice methods and environments could have upon efficaciousness.

A sample of 18 pianists, from Trinity College of Music, were used for the study. Data was collected and compared, before and after the study, using The Music Performance Self-efficacy Scale (Shepherd 2010, Jerusalem and Schwarzer, 1995).

Analysis of the data showed an overall increase of 14% in self-efficacy amongst participants. The results highlight the importance of practice methods and environment, along with their capacity to influence self-efficacy levels.

Introduction & Background

Studying music and working as a performing musician requires great effort and perseverance. As well as the many hours required each day for practice, public performance also requires enormous energy and concentration. It is therefore very important that musicians are psychologically as well as physically equipped to deal with and overcome problems which they may face. It is necessary to have belief in one's own ability and potential, to succeed and improve. This sense of belief is known as 'self-efficacy'. It can be defined as: 'the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations'.[1] Having a high level of self-efficacy is advantageous and of great importance; 'A strong sense of efficacy enhances human accomplishment and personal well-being in many ways'.[2] Self-efficacy has been shown to have the greatest predictive power of attainment (Zimmerman et al. 1992). This has also been seen to be the case within the musical domain (McCormick and McPherson 2006).

Self-efficacy is an important part of social psychology, specifically, an important part in a branch of Psychology known a 'Positive Psychology'. Positive Psychology focuses on factors that create meaning in an individual's life. Albert Bandura, the principal efficacy researcher quoted 'Students whose sense of efficacy was raised set higher aspirations for themselves, showed greater strategic flexibility in the search for solutions, achieved higher intellectual performances, and were more accurate in evaluating the quality of their performances than were students of equal cognitive ability who were led to believe they lacked such capabilities.'[3]

Previous music-related self-efficacy research has been important in a few respects; it has shown the importance of having a high level of self-efficacy –

[1] Bandura A, (1995), *Self Efficacy in Changing Societies,* Cambridge University Press, p.2
[2] Bandura, A. (1991a). *Self-efficacy mechanism in physiological activation and health-promoting behavior*. In J. Madden, IV (Ed.), *Neurobiology of learning, emotion and affect* (p.229). New York: Raven.
[3] Bandura, A. (1997). P.215 *Self-efficacy: The exercise of control*. New York: Worth Publishers.

where it was most predictive of performance achievement.[4] Secondly, it has been successful in drawing a parallel with academic contexts, proving that efficacy is also one of the most important cognitive meditational processes for musicians.

Notably, no previous research within the musical domain has been aimed at attempting to raise self-efficacy levels, or monitoring self-efficacy levels whilst varying rehearsal methods and environments. Since it has been shown in a variety of areas that self-efficacy is so important in terms of positive motivation, being able to raise a person's task-specific self-efficacy level would be of great importance, both in the musical world and for encouraging further cross-disciplinary research.

If it is seen that musicians' self-efficacy levels can be raised through diversifying their practice methods, it would be of significant importance to pedagogues world-wide, encouraging more cross-disciplinary study to be undertaken. Musicians, especially soloists are more susceptible to stress-related illnesses and developing mental illnesses. Increasing their self-efficacy levels would lower their susceptibility of developing such problems.[5]

Why do musicians need high self-efficacy levels?

When one needs to perform in front of an audience, often a great deal of time and effort has been given to the preparation of the activity to be performed. Certain methods of preparation will have been used to prepare the individual for performance. These methods have the possibility of affecting one's self-efficacy levels. 'Those who have a high sense of efficacy, visualize success scenarios that provide positive guides and supports for performance'.[6]

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[4] McPherson G. and McCormick J. (2003). *The role of self-efficacy in a musical performance examination: and exploratory structural equation analysis,* p.37

[5] Temple, T. (1992) *Training the body to cure itself, how to use exercise to heal.* Roedale Press, P.134

[6] Bandura, A (1991a) Loc.cit

Literature on this topic in academic areas demonstrates that students who display slightly higher perceptions of their own ability to accomplish a task than is justified by their actual ability, are more likely to choose more challenging tasks, exert more effort, persist longer, and be less likely to experience debilitating anxiety.[7] Minimising anxiety and being able to persist with tasks is of great importance to people, especially those working in areas where the demand and pressure is very high, such as in music.

One has seen unsuccessful performances numerous times. It may not have been because the performer lacked the necessary skills required to perform, but more often that their performance was compromised by the affect of adverse psycho-physical symptoms caused from, amongst other factors, a low level of self-efficacy.

People are more likely to take on a task if they believe they can succeed. Research shows that the 'optimum' level of self-efficacy is a little above ability, which encourages people to tackle challenging tasks and gain valuable experience.[8] Self-efficacy and motivation are closely linked; a person with high self-efficacy will be more active in their efforts since their perceived ability to master the task will be high.

[7] Pajares, F (1996B) *Self-Efficacy Beliefs in Academic Settings*, Review of educational research 66: p.543
[8] Csikszentmihalyi M, (1997) *Finding Flow*, New York:Basic Books, p.17

Literary Review

Music education self-efficacy research and previous research by the author:

Self-efficacy is a popular area of psychology, currently being researched worldwide. Research within the musical domain, however, has been limited, with only a few studies having been carried out. These studies have been largely congruent in their findings of research within other fields (academic). They have shown that efficacy is task-specific and that it is tightly associated with motivation (Covington, 2000; Eliot and Church, 1997; Maehr and Meyer, 1997). The two key pieces of efficacy research within music have explored (i) self-efficacy for musical performance and musical learning (Ritchie and Williamon, 2007) and (ii) the relationship between perceived self-efficacy and actual musical performance level (Mcpherson and McCormick, 2003)

Ritchie and Williamon, 2007, piloted new, music-specific, self-efficacy tests to gather information on musical self-efficacy beliefs for both musical performance and musical learning. Previous efficacy research within music has used 'general self-efficacy' tests to gather data. They found that music students' self-efficacy levels for musical learning was much higher than for musical performance. They concluded that self-efficacy is task-specific, even for different tasks within the same field. The findings also highlighted that self-efficacy levels are relative to the demands upon the student in each situation. They concluded that further research, analysing the correlation between students' self-efficacy levels for music performance and their actual attainment would be of importance. Students scored lower on the General Self-efficacy Scale, indicating that further research in to a person's 'overall musical-image' needs to be explored. This also reinforces the well-established fact that efficacy is task-specific.

Mcpherson and McCormick (2003) aimed to investigate factors associated with positive motivation, including efficacy, within the domain of music. They wanted to be able to create a valid piece of research to parallel research from other areas, namely academic areas. They investigated cognitive mediational

processes within a musical examination environment (the study explored the relationships between variables related to motivation, musical practice and performance). The results suggested that 'the link between self-efficacy and performance quality appeared to be consistent with other academic contexts', i.e. that self-efficacy levels are a strong predictor of performance level. Though the study was short-term, it used a large, representative sample and the results were very clear.

Cross-disciplinary self-efficacy research (Shepherd 2008) - An introduction to the current research.

Previous research by the author involved 40 participants; 20 gymnasts (tumblers) and 20 pianists. Participants answered the 10 questions of the 'General Self-efficacy Scale' (Jerusalem & Schwarzer, 1995) – See 'Appendix one'. The Generalized Self-Efficacy Scale is a 10-item psychometric scale that is designed to assess optimistic self-beliefs to cope with a variety of difficult demands in life. It typically yields internal consistencies between 0.75 and 0.90.

Participants completed the Test of Performance Strategies (Thomas, Hardy, & Nelson, 1999) – See 'Appendix two'. 'The TOPS is a 64-item measure of psychological skills. Exploratory factor analysis indicated an eight-factor solution for competition factors and an eight-factor solution for training factors. Factors are common to training and competition, except 'negative thinking' for competition and 'attentional control' for training. Items were rated on a 5-point scale anchored by never (1) to always (5). The four-items were summed to produce factors scores, meaning that factor score could range from 5-20'. Participants additionally completed a questionnaire, designed with open questions, relating to the findings from the two tests.

The results showed that self-efficacy levels amongst pianists were much lower than amongst gymnasts (tumblers). The conclusions drawn from the findings

pointed towards the distinct differences in training environments and methods as the most likely contributing causes in affecting self-efficacy levels ('contributing factors' as termed by Albert Bandura). Evaluating the results offered some insight to the main influencing sources affecting efficacy levels, including; the way musicians and gymnasts are taught/coached, the methods of practice/training and other factors, including feedback.

Training environment and training methods within any field are highly important and can affect a person's progress. I believe levels of self-efficacy can be increased (or decreased) if the training methods are adjusted; they are able to help allow the musician to gain more sense of their own abilities and to have a sense of group efficacy.

The results showed a distinctly higher average self-efficacy level amongst the gymnasts than the pianists. The pianists experienced more negative self-talk whilst competing and training. The gymnasts had more strategies to deal with competition pressure and with wandering of concentration during training.

The results also highlighted that gymnasts use a much wider variety of 'Performance Strategies', than musicians, such as mental rehearsal, which help to deal with performance anxiety.

'Activities in which mistakes can produce costly or injurious consequences call for accurate self-appraisal of capabilities'.[9] Since pianists are not under a physical threat when practising, it gives them the option of being freer and less structured in the ways they practise. They often spend long amounts of time conducting unstructured practice.

Pianists mainly practice alone, whereas tumblers train as part of a social group. Whist training, tumblers observe each other and take it in turns to practice their routines. This opportunity allows for a variety of social cognitive processes to take place; 'The second way of strengthening self-beliefs of

[9] Bandura, A. (1991b). *Self-regulation of motivation through anticipatory and self-regulatory mechanisms*. Lincoln: University of Nebraska Press. P.38

efficacy is through the vicarious experiences provided by social models'.[10] Bandura talks about how seeing people similar to oneself succeed by sustained effort raises your own beliefs that you too possess the same capabilities. Training as part of a group also allows a person's sense of collective efficacy contribute to increasing individual self-efficacy, through an increased feeling of support.

Training with a coach present allows for constant feedback and it is quite rare not to see improvement during any one training session where this kind of regular feedback is given. Pianists usually receive one lesson from their teacher per week and, if they have practiced incorrectly throughout the week, it means that they have wasted a vast amount of time. It is by no means universal for piano teachers to give advice on use of practice time, and even if they do, the quality of feedback will generally depend on the student's levels of meta cognition and self-awareness.

The social aspect of group training and the idea of 'group efficacy' is another possible contributing factor in boosting efficaciousness and results gathered in the qualitative data support this hypothesis. Bandura talks about how seeing people similar to oneself succeed by sustained effort raises your own beliefs that you too possess the same capabilities. Training as part of a group also allows a person's sense of collective efficacy contribute to increasing individual self-efficacy, through an increased feeling of support.

From the study, it became evident that much more mental rehearsal occurred amongst the gymnasts, especially in a competition situation. The ability to mentally rehearse successfully appears to be very important and is reflected within the results; gymnasts experienced less negative self-talk and many used mental rehearsal as the main strategy of controlling it. 'Anxiety arousal is affected by…perceived efficacy and controlling disturbing thoughts'.[11] This statement comes from a topic Bandura called 'Thought control efficacy'.

[10] Ibid
[11] Ibid

As a result of this research and from the results gathered from the 'TOPS' test, it was evident that gymnasts used a wider variety of Performance Strategies. The environment of training also appeared to be critical in affecting levels of self-efficacy.

During the current research project, I hope to be able to test these conclusions, and determine which of the differences in rehearsal environments between the musicians and gymnasts are the most significant in affecting self-efficacy levels. I believe, as did Albert Bandura (the most prolific efficacy researcher), that having a high level of self-efficacy has a whole myriad of benefits to a person, both mentally and physically, promoting well-being, allowing you to achieve more and remain more focused.

Bandura referred to factors that are able to affect self-efficacy levels, which he called 'affecting factors of efficacy'. It is my research aim to see if musicians levels of self-efficacy can be raised if they adopt certain training techniques derived from training methods used within gymnastics (and other sports to that end). This research is pioneering, and aims to actively contribute ideas to pedagogy by proving how different practice methods are able to raise levels of self-efficacy.

Methodology

Primarily, a certain number of varying rehearsal methods, which could be practically and safely tested, were chosen for the study. These methods were conceived upon analysis of my previous research (2008); the environmental/training methods, which were seen as most effective in raising levels of self-efficacy amongst gymnasts, were then used as key areas upon which the rehearsal methods for the current study were conceived.

A sample of 18 pianists, aged between 19 and 24 (mean 20.6), from Trinity College of Music were used for the Study. Students who participated were all full-time Undergraduate or Postgraduate level students. Participants received 'study packs', including all the information and tests required to participate in the Study (See 'Appendix three'). A verbal explanation and a question, and answer, session took place, along with Participant Consent Forms being completed.

The participants completed a three-week study programme (three-week practice schedule), which incorporated a variety of practice methods in to their usual weekly piano practice schedules. These practice methods had been devised by incorporating some of the key environmental and practice methods used within gymnastics, as explained further on. Their self-efficacy levels were tested before and after the study, qualitative data was collected using a 'thought box' process, where ideas, thoughts and feelings could be noted and reflected upon throughout the study period.

These 'contributing factors' or 'influencing sources' of self-efficacy, as suggested by Albert Bandura, were taken in to consideration and helped significantly in the design of this current research.

Measures

The 'General Self-efficacy Scale' (Jerusalem and Schwarzer, 1995 – 'Appendix one') was chosen as template to be adjusted and made more music specific, for example by substituting words such as 'task' and 'problem' with 'practice' or 'performance' (The Music Performance Self-efficacy Scale, Shepherd 2010, Jerusalem & Schwarzer, 1995 is contained within 'Appendix three')

This test includes 10 efficacy-related questions, with responses being given using a 5-point scale (1 = strongly disagree to 5 = strongly agree). This test required completion before and after the three-week study period to allow changes in self-efficacy to be measured.

The three-week practice schedule was devised for the pianists, incorporating ideas, environmental specifics and methods of training derived from gymnastics. The schedule is tabulated below, with the rationale for each section included in the right-hand column.

Action	*Rationale*
For each practice session: Place a picture of your teacher on the piano	*Gymnasts consistently have their coach present, when training and performing. This allows for constant feedback and appraisal. Training becomes very efficient and task based. The gymnast is not permitted to be waste time. Having a picture of your piano teacher on the piano simulates this and reminds the pianist of their teacher's words and instruction.*
Look at your daily practice goal and weekly checklist	*A gymnast's training session is always time limited; training cannot be done at home or alone in the Gymnasium. Because of this, a highly structured and progressive framework is*

Look at your daily practice goal and weekly checklist	*A gymnast's training session is always time limited; training cannot be done at home or alone in the Gymnasium. Because of this, a highly structured and progressive framework is developed whereby gymnast and coach set clear goals for each session.*

3. Warm up – Spend 5 minutes Listening to an inspirational performance (ideally of your current repertoire) as you are stretching/warming up.	*Gymnasts feel more confident in training after their warm up because the warm up facilitates a gradual increase in physical and mental processing. Warming up for Pianists usually involves scales and other technical work. This is a physical warm-up, but for gymnasts, more mental processing and motivational influences are experienced as they watch other gymnasts whilst warming up. This prepares them mentally, and physically, for their training session/competition, facilitating vicarious learning which is seen as one of the main influences factors in boosting self-efficacy.*[12] *Asking the pianists to listen to an inspirational performance of their current repertoire and complete a physical warm-up allows them to focus and increase their motivation for the task via vicarious experience.*
Thought Box: Please use this box to note down any positive or negative feedback you have from your week (be as descriptive as possible)	*The 'thought box' idea allows for the participants to note down any positive or negative feedback and gives them an opportunity to write, freely, about their experiences, thoughts and feelings throughout each week of study. It allows for a lot of qualitative data to be collected, along with the more quantitative data from the Self-efficacy Tests.*

[12] Ibid

Weekly Checklist: Have you recorded yourself this week? Y/N?	*Since pianists cannot train in groups all the time, in order to gather feedback, videoing their practise is very important. It allows them to appraise their performance, as a coach would do for the gymnast.*

Have you played in a performance class this week? Y/N?	*Training as part of a social group, creates a sense of group efficacy. Feedback is more open within social groups and also the feedback from coaches is made public and is constructive, which allows the gymnast to know where they fit in. It also allows the gymnast to become used to performing in front of an audience.* *Asking the pianists to play in Performance Classes encourages them to be more accepting and, hopefully, motivated by receiving constructive criticism. Over a period of time, their performance anxiety levels will also be lowered.*
How many times have you played to a friend this week?	*For gymnasts, there is formative assessment included in every Training Session and summative assessments perhaps once per month at higher level. Pianists (solo rather than chamber) rarely have chance to benefit from any group training and often do not build up their self-efficacy levels. Often whilst studying, summative assessment occurs just once per year and if the feedback is negative or the mark is lower than desired, it could reinforce low self-efficacy.* *Performing regularly to a good friend who can give you honest feedback provides extra appraisal and evaluation of your playing.*

Have you worn your 'concert' clothing & footwear for one session this week? Y / N?	*Gymnasts wear the same clothing in training and performance and often compete on the equipment that they train on. Pianists rarely do and, for example, many concert instruments are restricted for practise.* *Within each week of the Training Schedule, the pianists were asked to put on their concert clothing for a practise session and to also try playing in their exam room on the instrument that will be used for their exam. This helps to reduce exam stress by reducing the differences between training and performance environments.* *Wearing the same style of clothing for training and competitions means that the gymnast is able to focus more easily on the task in hand without having to worry about the feeling or appearance of their clothing. Also, clothing has certain links and associations for people; smart clothing is associated with more important occasions and this often increases people's arousal levels and reduces the effectiveness of the performance.*
Have you practiced or visualised in your exam room this week? Y / N?	*Practicing in the room where your performance or examination will take place is an important task to complete.* *Visualisation is the process of creating a mental image or intention of what you want to happen or feel.* *An athlete can use this technique to 'intend' an outcome of a race or training session. By imagining a scene, complete with images of a previous best performance or a future desired outcome, the athlete is able to simply 'step into' that feeling.*

	While imagining these scenarios, the athlete should try to imagine the detail and the way it feels to perform in the desired way. *These scenarios can include any of the senses. They can be visual (images and pictures), kinaesthetic (how the body feels), or auditory (the noise of the crowd). Using the mind, an athlete can call up these images over and over, enhancing the skill through repetition or rehearsal, similar to physical practice. With mental rehearsal, minds and bodies become trained to actually perform the skill imagined.*[13] *Research shows that both physical and psychological reactions in certain situations can be improved with visualisation. Such repeated imagery can build both experience and confidence in a person's ability to perform certain skills under pressure, or in a variety of possible situations.*[14] *Visualisation / mental rehearsal or other such techniques can maximise the efficiency and effectiveness of your training. In a world where sports performance and success is measured in seconds, most athletes will use every possible training technique at hand. Visualisation might be one way to gain that very slim margin.*

[13] Martin, K.A., Hall, C. R. (1995). *Using Mental Imagery to Enhance Intrinsic Motivation*. Journal of Sport and Exercise Psychology, 17(1), P54-69.

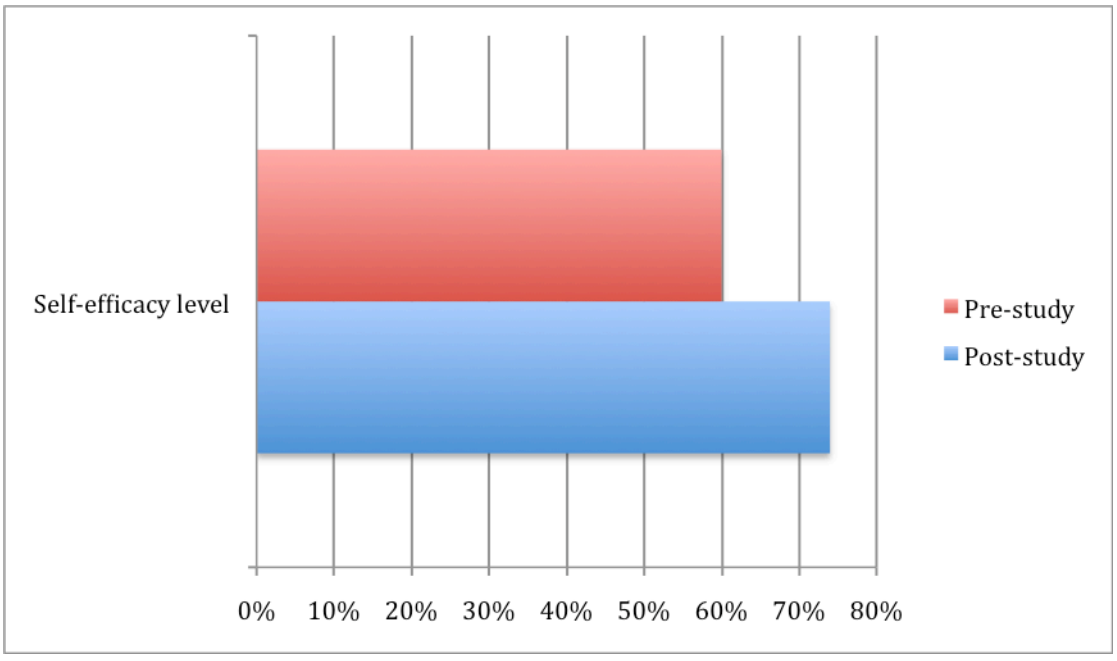
[14] Brouziyne M, Molinaro C. (August 2005) *Mental imagery combined with physical practice of approach shots for golf beginners*. Perceptual and Motor Skills. 101(1):203-11.

Analysis of results and Discussion

Data gathered was both quantitative, from 'The Music Performance Self-efficacy Scale' and qualitative, from the 'Thought Boxes'.

Scoring from The Music Performance Self-efficacy Scale (TMPSS) was out of 50 (10 questions with a sliding scale of 5 for each answer). Before the three-week study period, the average result of self-efficacy was 30/50. After the study, the average results totalled 37/50. This is an increase of 14% in self-efficacy levels. In some individual cases, an increase of 24% in efficaciousness was seen, and an increase of at least 4% was seen amongst all participants.

TMPSS Results



It was seen that those participants who completed a great amount of the weekly checklist tasks over the period of study, the greater the difference in their self-efficacy level at the end of the study period. This shows a direct

correlation between the study methods/practice environment and level of self-efficacy increase.

Qualitative data; thematic analysis

Efficiency: participants noted an increase in the efficiency of their practice and also in their efficiency in terms of setting realistic, attainable goals for practice. This was seen to improve the quality of their practice and raise their levels of self-efficacy.

Self-analysis: being able to analyse your playing objectively and honestly is an important skill. It allows you to be able to create a realistic self-image and understanding of which remedial work needs to take place in order to improve.

Careful Practice: this area was largely mentioned with reference to the warm-up activity (warming up whilst listening to an inspirational performance). It was seen amongst participants that those who regularly listened to a piece of repertoire whilst warming up (especially the particular work to be practiced) that their attention to detail within their following practice session was greatly increased.

Motivation: participants noted increasing amounts of motivation throughout the three-week practice schedule; both in terms of intrinsic and extrinsic motivation. The more intrinsic motivation came from gaining increased sense of enjoyment from playing, aided, of course, by the extrinsic motivation gained from being able to demonstrate their progress and proficiency each time they performed to colleagues/professors.

Task-focus: an increasing amount of task-focus was seen as the three-week training schedule unfolded. A variety of reasons for this were concluded: participants arranged a next meeting to play to colleagues, arousal was increased and this in turn, raised participants' task-focus. For those more

intrinsically motivated, their task-focus increased as they saw improvement in their technique or interpretation. Other Participants noted that their task-focus increased as their ability to more accurately task set became more efficient and realistic.

Productivity: being able to set realistic practice goals and achieve them led to increased motivation and efficacy gain. Increased levels of productivity were linked to this achievement and increased efficiency in setting realistic goals.

Interpretative conviction: successfully playing to colleagues or in Faculty Classes, coupled with the other practice methods involved, led to a more confident sense of the participants' interpretation of their repertoire.

Weekly Analysis

Week one:

Participants became aware that goal setting was important and they found that reflecting upon their practice goals was a great way to analyse one, their practice efficiency and two, how realistic their goals were. The process of goal setting seemed to provide the students with a sense of important ability to self-analyse.

Participants who were unable to complete as many areas of the 'weekly checklist' scored notably lower on the efficacy tests following the study and noted more difficulties during the study period. This could be related to Hallam's idea that motivation improves with amount of practice.[15]

Results showed that efficacy levels naturally increase with practice amount. Further research to include the use of a control group might help to ascertain

[15] Hallam, S. (1998) *The predictors of Achievement and Dropout in Instrumental Tuition. Psychology of Music* 26(2): P112-30

just how effective these environmental and practice methods were in terms of raising efficacy levels.

Participants noted that listening to a recording of an inspirational performance of their repertoire encouraged them to practice more carefully. Hearing another pianist performing at a high level was inspiring and raised their efficacy levels by motivating them to want to increase their performance ability to match the level of the recording (vicarious learning).

Participants noted that they were much more task-focused and structured their practice sessions more. They found their practice to be much more productive and focused. This kind of high level, task focus, was largely mentioned by participants.

Week two

Interestingly, a few participants with lower levels of self-efficacy as shown by the results of the pre-study test, found it counterproductive and de-motivating to listen to good performance of piano music whilst warming up. Since the recording was of such a high level, they viewed it as a threat, rather than inspirational or motivational. Perhaps studying the importance of avoiding certain types of vicarious learning for those with low levels of self-efficacy would be of importance. Thinking about which other areas could be used to help raise levels of efficacy for these participants would be insightful.

Participants noted improvements in their technique, and commented that these improvements seemed to be happening faster than usual.

Musical ideas were more secure and through regular performance to peers, stronger sense of self-image was noted. Participants felt much more confident in their feelings of interpretation of the music.

Participants found that setting tasks rather than a prescribed amount of practice time was the most beneficial way to achieve their 'daily practice goals'.

Week three

Many Participants commented upon having a greater sense of 'Purpose and Motivation'. Self-efficacy and motivation are tightly linked, as discovered by Ritchie and Williamon, 2007. Growing levels of confidence were seen in terms of belief in their self-performance. This is an important finding, as levels of efficacy for music performance were shown to be much lower than for music learning by Ritchie and Williamon (2007). Participants found that their practice sessions flowed much more easily and that because they were meeting their practice goals, they felt much more confident (i.e. their levels of efficacy were increasing for music performance).

A few participants noted that listening to 'pop music' during their warm-up session was more motivational than listening to a piece of piano music. Perhaps listening to music of a different genre allowed for a more general feeling of mental warm-up without their being an analysis or comparison in ability between the participant and the performer on the recording.

Participants commented that playing to friends became easier with each playing and helped to actively lower their adverse psycho-physical symptoms such as shaking and having sweaty palms. They also became more confident and in control of their playing.

Conclusion

The study showed that levels of self-efficacy amongst the pianists were successfully raised, according to the results gathered using the 'The Music Performance Self-efficacy Scale (Shepherd 2010, Jerusalem & Schwarzer, 1995). Before the study period, the average result of self-efficacy was 30/50 (60%). After the study, the average results totalled 37/50 (74%). This is an overall mean average increase of 14% in self-efficacy levels. In some individual cases, an increase of 24% in efficaciousness was seen, and an increase of at least 4% was seen amongst all participants.

This demonstrates the important affect that training methods and environments can have in terms of influencing levels of self-efficacy. Since self-efficacy is one of the most important cognitive mediational processes[16], and was seen as the most predictive of performance achievement (McCormick and McPherson, 2006), the implications of the results from this study are great. They not only offer new training methods to musicians but they also encourage further exploration of alternate practice methods and also further cross-disciplinary research.

Although the study was short-term, the results gathered were mainly consistent and, therefore, reliable. Since self-efficacy is an emotional quality, the data gathered is largely qualitative, making the results more difficult to analyse. 'The Music Performance Self-efficacy Scale' (Shepherd 2010, Jerusalem & Schwarzer, 1995) was adapted from a general self-efficacy scale, to make it more specific. However, there is not yet a validated, music-performance self-efficacy test, as reported by Ritchie and Williamon, 2007.

[16] Williamon, A. (2004) *Musical Excellence* P.66, Oxford Musical Press.

Directions for future research

If ethical concerns could be resolved, future research could look at lowering self-efficacy by reversing the successful factors which were seen to raise efficaciousness.

Further analysis of personal circumstances of participants, i.e gaining knowledge of if any participants who have SPLDs (if they would be willing to disclose such information) would be more beneficial; generic training methods do not suit everyone; those with initially lower levels of self-efficacy responded differently from participants with higher levels of efficacy. Those participants with lower levels of self-efficacy were seen to find some aspects of vicarious learning more of a hindrance, rather than as a source of motivation.

Further research involving a larger number of participants and a more valid means of testing music-specific self-efficacy would be more desirable to yield data, which could be more extensively analysed in terms of performance-orientated self-efficacy.

Separating male and female participants might offer more specific data for analysis of how different training methods affect self-efficacy levels between genders. Males and females may approach the study of music and/or performance differently based on gender uniqueness in terms of brain function. For example, in general the male brain is more lateralised, goal-oriented, instrumental, and compartmentalised. Males may be more single-minded about pursuing the study of music, setting goals for musical accomplishments, and preparing for specific performances. With a more lateralised and goal-oriented brain, males may find it easier to focus for longer periods of time. Typically the female brain is more generalised, expressive, collegial, and at least equally concerned about the quality of the experience on the way to the goal as compared to pursuing the actual goal. With a more generalised and collegial brain, females may find it more of a

challenge to focus in the way that is expected of and that works for the male brain. Females tend to be more concerned about the quality of the journey on the way to the goal. They may want more variety and may find it more of a challenge to prepare for one specific performance.[17]

[17] Taylor, A. (1999) *Realizations. Success Resources International.* P.37.

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