Focus of Attention and Motivation in Musical Performance

Isabelle Arseneau-Bruneau
Amy L. Simmons, Ph.D.
Center for Music Learning, The University of Texas at Austin

Background

What we intentionally think about while performing, known as **focus of attention (FOA)**, can significantly affect performance outcomes for motor tasks in various fields.[9]

FOA instructions are categorized as **external** when oriented on the **effects movements produce**, and as **internal** when oriented on the **movements themselves**.

Research on motor skill learning outside of music suggests that **external FOA optimizes performance[9]** and also that effects of FOA can vary with:

a) visual and auditory environmental distractors,[3]

b) the type of task being learned,[4]

c) learners' preexisting level of skill,[7] and

d) motivational factors associated with practice.[9,10]

In **music and auditory-motor tasks**, performance has been observed as optimal when participants concentrated on their **sound**[2] (external FOA). More recently, however, Stambaugh[6] as well as Atkins and Duke[1] reported benefits for internal FOA, particularly in the first stage of learning (acquisition).

Research Questions

Our study examined FOA with novice trumpet players during the first phase of learning, specifically:

I. How does focusing attention on internal and external elements of trumpet playing affect performance of complex music tasks?

II. Do performers have the same perceptions as experts concerning their performance outcomes?

III. Is there a difference between asking performers to think about their sound rather than to think about the sound they *want* to produce (i.e., ideal auditory imagery)?

Methods and Materials

Participants (*N*=9)* were music education majors at a southern state university who studied the trumpet as a secondary instrument. All participants performed a 4-bar melody and a long tone while focusing their attention on the following internal and external aspects of their performance:

1) their **fingers** (internal),

2) their embouchure/**lips** sensation (internal),

3) a distal **target** from which to breathe/blow (external),

4) the **sound** produced and heard (external), and

5) the sound that participants wanted to produce (i.e., ideal auditory **imagery**) (external).

The presentation of FOA conditions was counterbalanced (Latin square) and randomly assigned to participants.

*One participant was excluded from the analysis due to considerable experience playing the trumpet in ensembles.

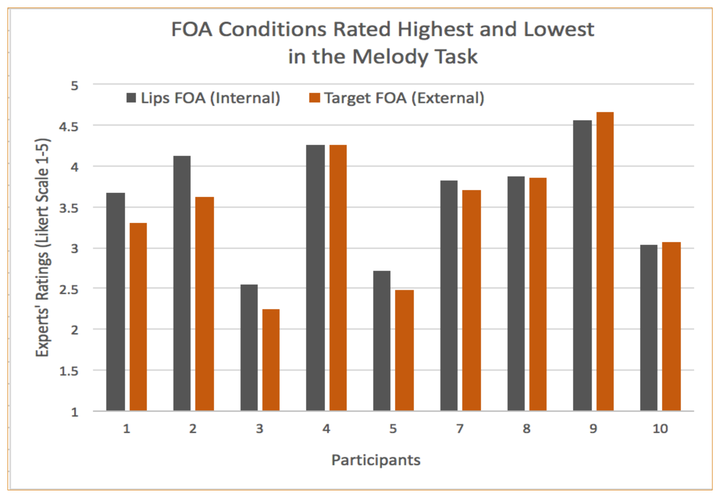
isabellearseneau@utexas.edu
asimmons@austin.utexas.edu

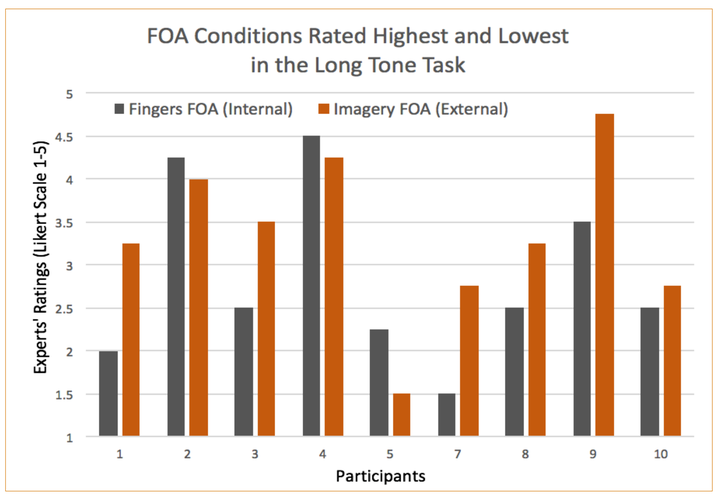
Analysis

A panel of experts assessed the recorded performances using the Woodwinds and Brass Solo Evaluation Form (WBSEF) [r = .91].[5] Comparisons were made between mean ratings of the melody and the long tone in all FOA conditions (I). We also compared performance scores given by experts with participants' self-ratings (II). Participants' perceptions and preferences related to FOA conditions were collected through questionnaires[1] (III).

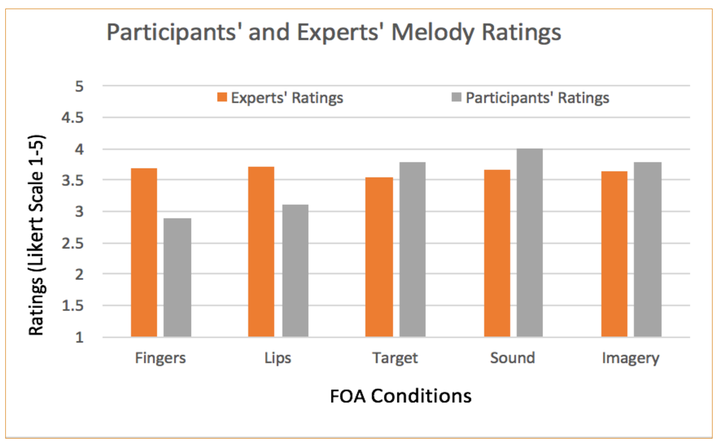
Results

I. Only one significant difference was found between experts' mean ratings of the melody: the lips FOA condition (internal) was rated highest overall, and was significantly different from the target condition (external) which was rated lowest overall, t[8] = 2.29, p = 0.05. No significant differences were found among ratings of the long tone task; however, the FOA condition rated highest was imagery (external FOA) and lowest was fingers (internal FOA).

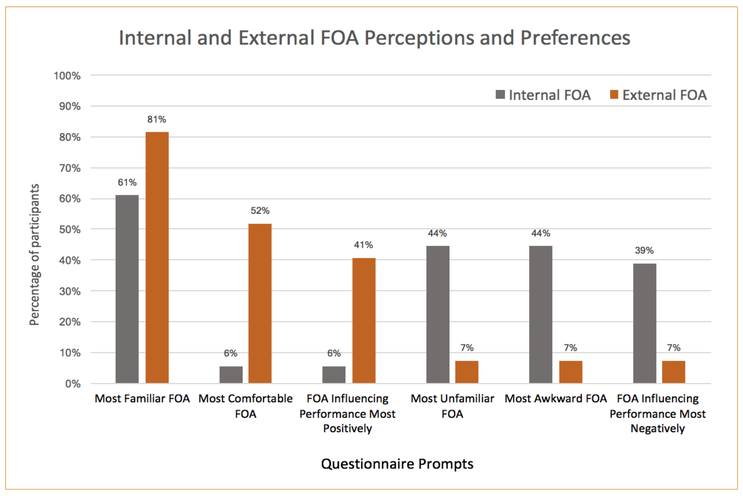


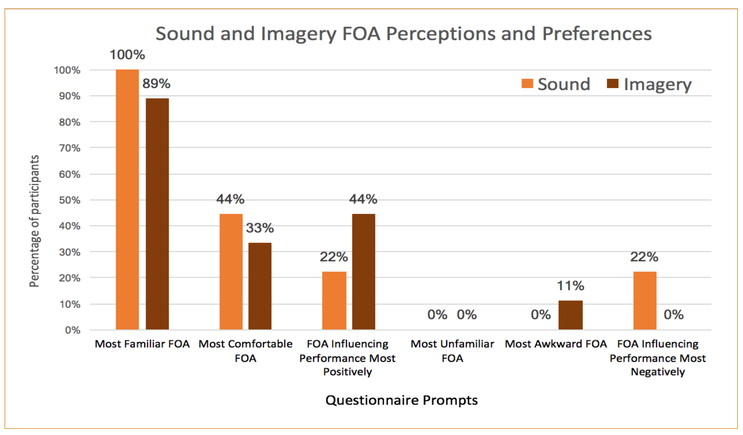


II. Participants' self-ratings of the melody in the five FOA conditions varied more than experts' ratings, and were notably lower than experts' ratings in the fingers and lips conditions (internal FOA).



III. Participants reported clear preferences for performing under external FOA conditions, although their responses related to the sound and imagery conditions were varied.





Conclusions

I. In this context, focusing learners' attention on internal and external elements of performance yielded no consistent differences in performance outcomes. The one significant difference reported here is consistent with Atkins and Duke's observation[1] that internal FOA may optimize performance of complex motor skills in the acquisition phase of learning.

II. Participants expressed clear preferences for focusing attention on external elements of performance, and rated melodies performed under external FOA conditions highest. These results raise questions related to the interplay between motivational factors and FOA outcomes.

III. Research exploring the role of perceived (sound) and desired (imagery) outcomes would be interesting to consider in auditory-motor task performance.

There were clear differences in skill level among these novice trumpet players which may have affected the results, and the small sample size is an important limitation to consider.

Acknowledgments

Special thanks to Robert Duke, Nicholas Reith, Joseph Jennis, John Parsons, Berry McWhorter, Laura Bock, John Vital, and the many UT Austin students who contributed to this project.

References

1. Atkins, R. & Duke, R. A., *International Journal of Research in Choral Singing*, 2013
2. Duke, R. A., Cash, C. D., & Allen, S. E., *Journal of Research in Music Education*, 2011
3. Lidor, R., Ziv, G., & Tenenbaum, G. *Journal of Applied Sport Psychology*, 2013
4. Lohse, K. R., Sherwood, D. E., & Healy, A. F., *Human Movement Science*, 2014
5. Saunders, T. C., & Holahan, J. M., *Journal of Research in Music Education*, 1997
6. Stambaugh, L., *Psychomusicology: Music, Mind, and Brain*, 2017
7. Wulf, G., Dufek, J. S., Lozano, L., & Pettigrew, C. *Human Movement Science*, 2010
8. Wulf, G., *International Review of Sport and Exercise Psychology,* 2013
9. Wulf, G., & Lewthwaite, R. *Psychonomic Bulletin & Review*, 2016
10. Wulf, G., Lewthwaite, R., Cardozo, P., & Chiviacowsky, S., *Journal of Experimental Psychology*, 2017