



Stan Renard and Monika Herzig

# Teaching Creativity in the Arts Entrepreneurship Curriculum: The Effects of Improvisation Training

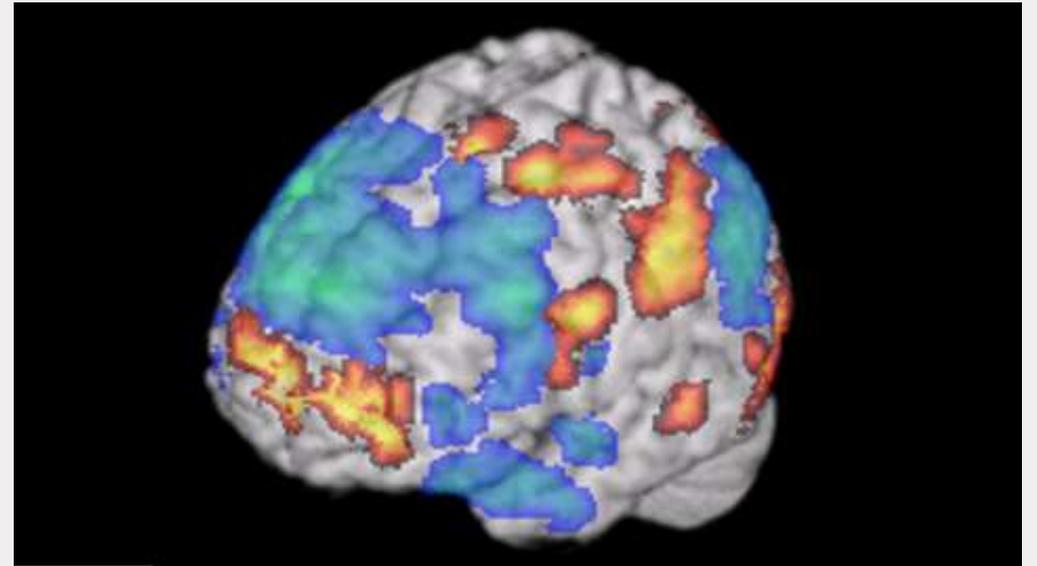
# Creativity and Growth Mindset

Although researchers differ in approaches, they do agree that creativity can be taught and measured (Treffinger, et.al. 2002; Bronson and Merryman, 2010; AMA, 2010)



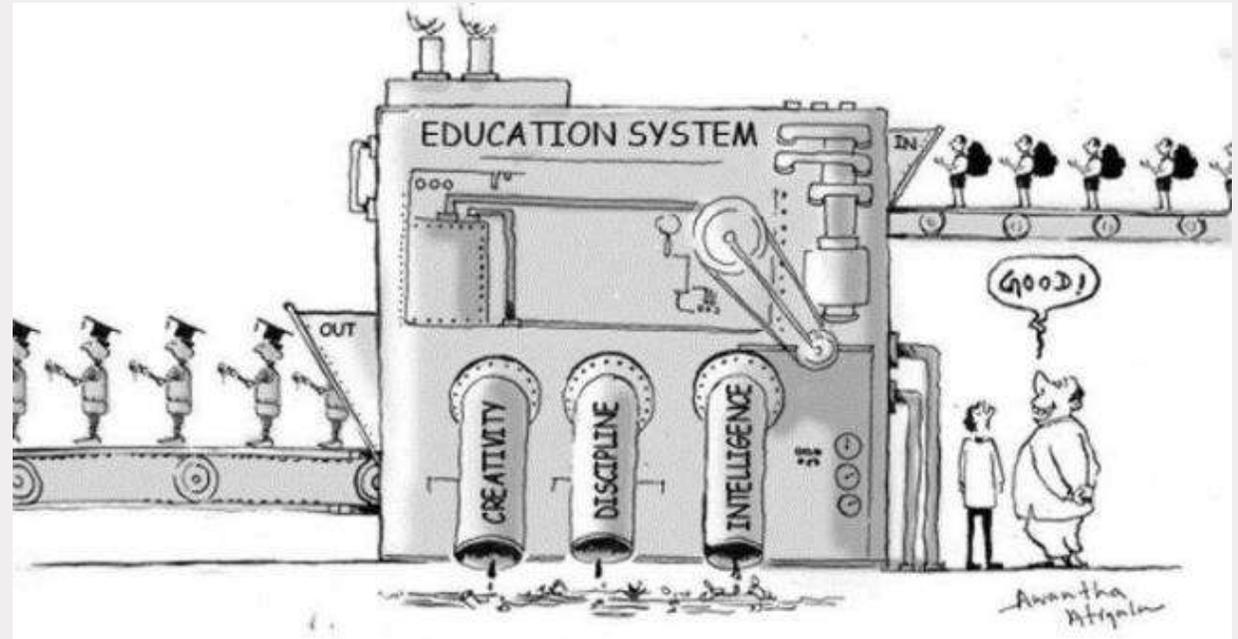
# *Improvisation, Creativity and Teamwork*

The readiness and skill to adequately react to the unexpected are obtained through active and repetitive practical training rather than theoretical learning (Bertinetto and Bertram, 2020).



# *Improvisation in the Entrepreneurship Classroom*

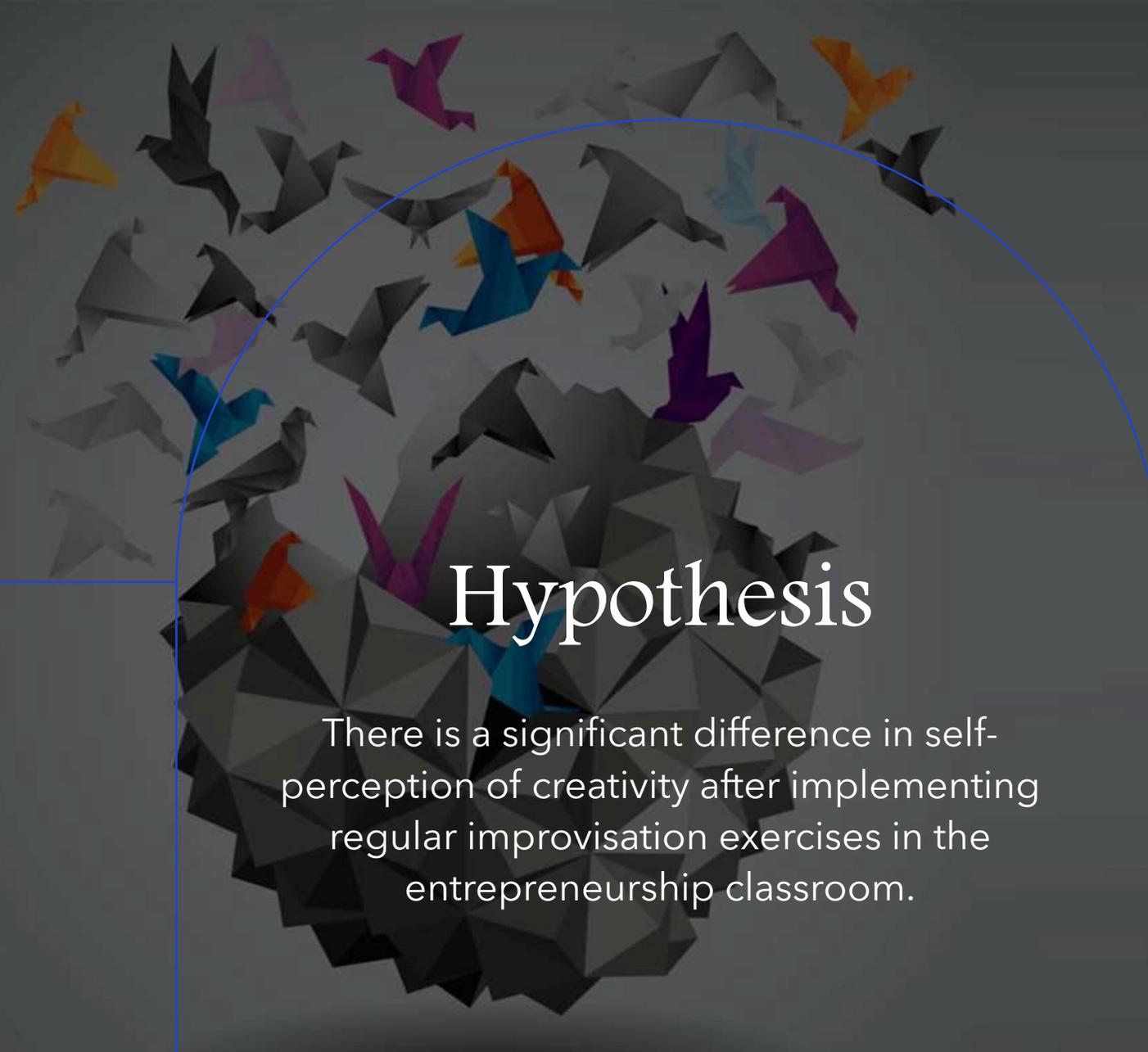
There is a lack of teaching the skills of communication, collaboration and teamwork, critical thinking, problem solving, and creativity throughout the entire curriculum (Perkins, 2002; Sisk, 2010).



# The Jazz Jam Session Model for Group Creativity (A MEIEA 2014 Grant Project)

- (1) individual competency and knowledge of the field
- (2) practicing improvisation
- (3) establishing mentoring systems and role models
- (4) democracy and collaboration
- (5) leaders and sidemen
- (6) community support
- (7) continuous evaluation systems





# Hypothesis

There is a significant difference in self-perception of creativity after implementing regular improvisation exercises in the entrepreneurship classroom.

# Method

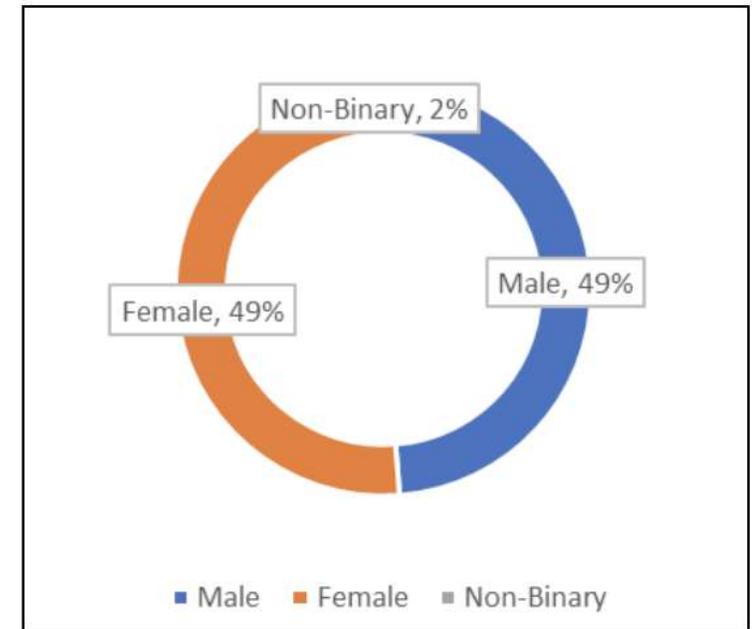
Throughout the spring semester of 2021, 41 students in Arts/Music Entrepreneurship classes at the University of Texas at San Antonio and Indiana University engaged in regular improvisational classroom activities chosen from 40 exercises relevant to all seven factors or the Jazz Jam Session Model with the goal of increasing creative capacities towards generating ideas and taking entrepreneurial risks. Improvisation is especially relevant to the world of entrepreneurship where uncertainty is high and the ability to react is essential. The students in those classes took an identical pre- and post-survey based on those experiences, respectively the first, and last week of class.

Analysis: A two-tailed Wilcoxon Signed-Ranks Test for Paired Samples with  $\alpha = .05$  to test the following null hypothesis (Cf. Table 6 and 7):

$H_0$ :  $p\text{-value} > 0.05$  The null hypothesis asserts that there is no significant difference in self-perception of creativity after implementing regular improvisation exercises in the entrepreneurship classroom.

Whereas:

$H_1$ :  $p\text{-value} < 0.05$  Our alternative hypothesis implies that there is a significant difference in self-perception of creativity after implementing regular improvisation exercises in the entrepreneurship classroom.



**Figure 1.** Participants Distribution by Gender

# Results

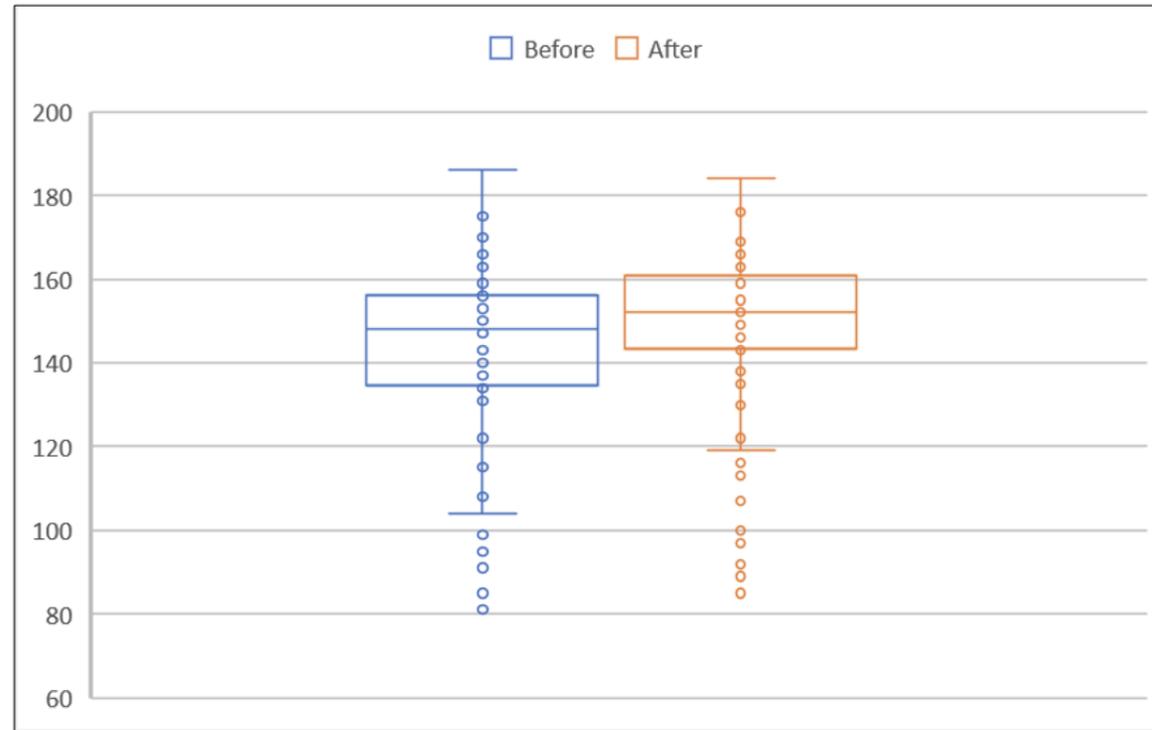
**Table 3.** Summary Statistics of Data Composition and Creative Capacity Increase (in %)

<i>Sample (n=41)</i>	3.6%
<i>Male (n=20)</i>	2.2%
<i>Female (n=20)</i>	4.8%
<i>Non-Binary (n=1)</i>	7.4%
<i>Undergraduate (n=34)</i>	3.6%
<i>Graduate (n=7)</i>	3.5%

<i>Measure Categories</i>	<i>Male (+) Count</i>	<i>in %</i>	<i>Male (-) ) Count</i>	<i>in %</i>	<i>Male (0) Count</i>	<i>in %</i>	<i>Female (+) Count</i>	<i>in %</i>	<i>Female (-) ) Count</i>	<i>in %</i>	<i>Female (0) ) Count</i>	<i>in %</i>
<i>Creativity/Abstraction</i>	6	60%	3	30%	1	10%	10	100%	0	0%	0	0%
<i>Pressure/Stress</i>	7	78%	2	22%	0	0%	8	89%	1	11%	0	0%
<i>Persistence</i>	6	50%	6	50%	0	0%	10	83%	2	17%	0	0%
<i>Perspective/Boldness</i>	5	36%	7	50%	2	14%	5	36%	4	29%	5	36%
<i>Ideation/Curiosity/ Complexity</i>	15	54%	12	43%	1	4%	21	75%	5	18%	2	7%
<i>Total/(Mean)</i>	39	(55%)	30	(39%)	4	(6%)	54	(77%)	12	(15%)	7	(9%)

# Significant Increase in Self-Assessed Level of Creativity

**Figure 4.** Before and After Survey Sums for our Questionnaire Sample ( $n=73$ )



# Conclusions

1. We found an overall increase of 3.6% in creative capacity in study participants. Our results confirm the effectiveness of implementing regular exercises and thus, provides key information for curriculum strategies in the entrepreneurship classroom.
2. We observed only moderate to negative results on the measures of boldness and perspective, a possible indication for the need to find the best balance of creativity exercises and skills training. Especially graduate students expressed hesitancy for stepping out of their comfort zone and having a secure knowledge and skill base can counter such hesitancy. The moderate findings in increased creativity levels for graduate students might also be the effect of extended years of schooling discouraging divergent thinking and the possibility of failure (Ahy, 2009).
3. The gender differences seem to indicate that female students benefit more from guided creativity exercises in the entrepreneurship classroom. In fact, they outperformed their male counterparts in the categories of creativity, pressure, persistence, and ideation.

# Limitations of the Study

1. Did our students increase their creative capacity due to the creativity and improvisation exercises they participated in with us? Or did they increase their creative capacity because of other activities they engaged in during the same time frame?
2. Including a control group of students in fields other than the arts in a subsequent study would provide further insights on the benefits of improvisational thinking exercises.
3. The participants at both universities were instructed entirely online due to the Covid-19 pandemic. Online learning and Zoom teaching may have inhibited the possible improvement options, and consequently the effects of our exercises
4. Only one non-binary student was evaluated in our study, thus underrepresenting the LGBTQ+ community in our sample
5. Even though creativity exercises were continuously conducted with the participants in the classes at both universities, the syllabi were not identical, different exercises were used, and the order of the exercises diverged

# What's Next?

1. Similar exercises will be implemented throughout a second semester of classroom teaching with the addition of assigning detailed weekly journals on learning and ideas. The hypothesis of the study is that results on creativity measures will hold constant to the ones we reported in this article.
2. The journals will be analyzed with sentiment scores (from -1, completely negative, to +1, completely positive) of each exercise calculated using the VADER (Valence Aware Dictionary for Sentiment Reasoning) Sentiment Intensity Analyzer from the NLTK package in Python. Results from this analysis will provide indications on the efficacy of specific exercises.
3. Further studies will include validation of specific exercise sequences and comparison to control groups.

# Questions

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