

# Using Art to Teach Entrepreneurship and Help Students Unlearn: Empirical Evidence of Efficiency of the Approach

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**Abstract:** In this paper, we highlight the need for the concept of *unlearning* in the entrepreneurship education, where it is practically non-existing. We examine importance of unlearning both theoretically and empirically, and discuss how it can be stimulated thanks to art-based practices. Our empirical study of an art-driven entrepreneurship education workshop shows that unlearning is strongly associated with development of entrepreneurial competences, especially in areas of creativity and working in situations of uncertainty and limited resources. Moreover, we find that the workshop significantly increases a number of dimensions of entrepreneurial self-efficacy of students. Our results suggest that unlearning plays a very important role in entrepreneurship education, and that more attention needs to be paid to this concept. We also find that teaching entrepreneurship through art can be a great way to make students unlearn, to help them develop a number of necessary for entrepreneurship competences, and to augment entrepreneurial self-efficacy.

**Keywords:** Entrepreneurship Education, Unlearning, Art, Entrepreneurial Self-Efficacy

## INTRODUCTION

Economic growth and innovations are considered to be largely dependent on entrepreneurship (Landström, Harirchi, & Åström, 2012). Since Entrepreneurship Education is widely recognized as important for stimulating entrepreneurship (e.g. Gorman, Hanlon, & King, 1997; Katz, 2007; Pittaway & Cope, 2007), the demand for and the offer of entrepreneurship education programs has been growing over the last years (Jones & Matlay, 2011; Kuratko, 2005; Neck & Greene, 2011). Moreover, enterprising skills are considered to be of importance not only for those starting a new venture, but also for people pursuing other careers (Gibb, 2002), and there are more and more calls to start seeing entrepreneurship as method or everyday practice (e.g. Neck & Greene, 2011; Sarasvathy & Venkataraman, 2011).

Yet, traditional entrepreneurship classes developing business planning, finance or management skills have a very limited focus that does not correspond well to what entrepreneurs really do at the beginning of creation of a company. Entrepreneurs act in environments that are uncertain and fast-changing; they often have limited resources at their disposal and need to come up with creative ways to use what they have at hand (Baker & Nelson, 2005; Sarasvathy, 2009). To be able to act efficiently in this kind of environments, future entrepreneurs often need to get rid of their previous beliefs, knowledge and ways of doing things, they need to *unlearn* them. While subjects directly related to unlearning are often discussed in entrepreneurship and entrepreneurship education research, it looks like the “unlearning” concept itself somehow rests behind the scenes, despite the attention it has received in organization studies literature.

In this article, we highlight the need for *unlearning* in entrepreneurship education and discuss how it can be achieved thanks to using art practices. We develop a number of hypotheses related to factors influencing unlearning and impact that unlearning has on learning. We then test these

hypotheses by using data collected during an art-driven entrepreneurship education workshop. We also study how this workshop influences entrepreneurial self-efficacy of students in order to understand what influence this kind of teaching has beyond unlearning. Our results suggest both usefulness of art practices and importance and role of unlearning in entrepreneurship education. Implications for entrepreneurship education, limits of the paper and venues for future research are discussed.

### **UNLEARNING AND ENTREPRENEURSHIP EDUCATION**

The concept of unlearning has been used in a number of organizational studies where questions of both individual and organizational unlearning have received a lot of attention (Becker, 2005). For the purposes of this study, we combine two definitions and define unlearning as discarding one's knowledge (Hedberg, 1981; Newstrom, 1983: 36), beliefs and pre-existing methods (Starbuck, 1996: 727). In general, the need for unlearning exists since what one has learned previously generates barriers preventing new learning (Navarro & Moya, 2005; Newstrom, 1983: 36). Yet, in entrepreneurship literature, and more specifically in entrepreneurship education literature, this concept has barely been studied. We posit that this is an important omission, and with this paper we try to place the concept of unlearning within the entrepreneurship education field, both practically and empirically.

There are certain challenges specific to entrepreneurship education that highlight the need for unlearning. First of all, since there are certain myths and beliefs about entrepreneurship in society that do not necessarily correspond to reality (Shane, 2008), students often come to entrepreneurship courses with those myths already in mind. If development of a realistic image of entrepreneurship is among objectives of entrepreneurship education, then students need to be able

to get rid of those misleading beliefs, to unlearn them. Secondly, many of entrepreneurial activities are intrinsically uncertain (here by uncertainty we mean Knightian uncertainty), and entrepreneurial activities are often in conflict with conventional ways of doing things (Smilor, 1997). As a result, an entrepreneur can easily find himself in a situation where his usual ways of thinking and behaving turn out to be invalid, and so he needs to replace them with new, relevant ones. Hence, there is a need to teach students how to deal with this kind of situations.

So students not only need to be able to unlearn certain knowledge/beliefs/methods during an entrepreneurship education course/program, but they also need to acquire an unlearning “skill” that could be used in real situations. How can both these objectives be achieved in practice? Fiol and Lyles (1985: 808) assert the need of “shocks, jolts, or crises for unlearning, new higherlevel learning, and readaptation to take place”. Therefore, in order to stimulate unlearning, non-routine and crises-provoking context needs to be created in a classroom. Once the need for unlearning is established (either in a classroom or in a real-life situation), unlearning itself and new learning need to take place. For this to happen, according to cognitive theory, students have to question their core values (Watzlawick, Bavelas, & Jackson, 1967; Watzlawick, Weakland, & Fisch, 1975) to be able to develop new heuristics. In the next section we will discuss more in detail how unlearning can be stimulated and guided in practice, and now let us consider the impact of unlearning on the learning process.

In his review Becker (2005: 601) points out that “it is contended that there is a distinct difference between the two processes of unlearning and learning, even though they may occur simultaneously”. If we see unlearning and learning as two distinct processes, four situations are possible in education: 1) unlearning occurs without consequent learning, 2) unlearning is followed by learning, or both happen simultaneously, 3) learning takes place without unlearning,

4) neither learning nor unlearning happen. We expect the 1<sup>st</sup> situation to be rather uncommon, compared to the 2<sup>nd</sup> one, and we test this hypothesis in the empirical part of our study. Indeed, once a student discards some knowledge/belief/method because of a “crisis”, they will need to quickly create new knowledge/belief/method in order to be able to deal with the “crisis” and not to rest in a disoriented state. As a consequence, for the 2<sup>nd</sup> situation, we expect that the stronger unlearning is, the more intense learning should occur. The 3<sup>rd</sup> situation corresponds to a normal situation of incremental (without disruptions) knowledge acquisition. Finally, the 4<sup>th</sup> situation is clearly not desirable in entrepreneurship education as it implies inefficiency of a course. The focus of this paper is on 1<sup>st</sup> and 2<sup>nd</sup> cases, and our corresponding hypotheses are following:

***Hypothesis 1a:** If unlearning takes place, then most likely it is associated with consequent learning.*

***Hypothesis 1b:** Stronger unlearning is associated with more intense learning.*

For the rest of the paper, we need to specify what we mean by learning which can have different manifestations. For the purposes of this study, we associate learning with development of different entrepreneurial competences (which are presented in the Methodology section).

### **USING ART TO UNLEARN AND LEARN ENTREPRENEURSHIP**

As mentioned, unlearning is stimulated by “shocks” and non-routine situations which are rather uncharacteristic of traditional classroom settings and teaching methods (where learning process is constructed to be rather linear). So how can one disrupt the context on the one hand, and guide the process of unlearning on the other hand? We suggest that art practices can help in achieving both these objectives. When students in entrepreneurship class are put into position of artists, it creates a significant disruption of what they are used to and introduces an absolutely different

learning context, which is favorable for unlearning. We will start by presenting existing research lying on the interface of art and entrepreneurship education, and then show why art practices can be useful for guiding unlearning.

Recently an interest has emerged in studying relationships between art and entrepreneurship, and researchers point out that there exist many similarities in practices of entrepreneurs and artists (Scherdin & Zander, 2011). Meisiek and Haefliger (2011: 78) suggest that “to understand entrepreneurship’s involvement with novelty creation scholars may benefit more from looking at the art than from studying start-up ventures”. They propose that studying creation of novelty in the arts can be a way around the problems related to the same process in business ventures, since in the art created artifacts are less valued for functionality than for the meaning which they create within existing context. Thus, studying creativeness of artists can help us understand creativeness of entrepreneurs (Bonnafous-Boucher, Cuir, & Partouche, 2011). Indeed, artists can spend much more time coming up with novel ideas than entrepreneurs who need to set up a viable business.

Creation of novelty comes hand in hand with great uncertainty. In case of artistic creation, it is quite probable that both the final piece of art and perception of it by the society are initially unknown, and maybe even unknowable. As artists spend a lot of time creating novelty, studying their practices can be a great way to understand how they handle related uncertainty. Once artistic practices are described and understood, they can be extremely useful in teaching students how to manage a somewhat different kind of uncertainty - uncertainty intrinsic to new venture creation. This way educators might properly handle in their classroom the issue highlighted by Neck and Greene (2011: 60): “entrepreneurship is neither linear nor predictable, but it is easy to teach as if it were”.

Another important dimension of art is its frequently subversive nature. Both creative artists and entrepreneurs must alter and transgress the operating rules of a field so as to change the status quo (Bureau & Zander, 2014). Again, practices found in art can be extremely useful to teach students to challenge and rethink current state of things and their own beliefs. During artistic practice students can concentrate on the essence of the issue and freely experiment with its diverse manifestations and interpretations, while this might be difficult to do with real entrepreneurial projects. So, artistic practices can provide us with a great toolkit for questioning current state of things, one's beliefs and practices. And as discussed earlier, such a questioning is necessary for unlearning to happen.

To summarize, we suggest that using art practices in entrepreneurship education can be helpful both in creating contexts that would stimulate unlearning, and in providing tools for guiding unlearning in uncertain situations. We formulate the following hypothesis that we test empirically:

***Hypothesis 2:** Art-based entrepreneurship education strongly stimulates unlearning among students*

### **ENTREPRENEURIAL SELF-EFFICACY**

While unlearning is of primary interest for this paper, understanding the impact of art-based education beyond unlearning is also important. For this, in the empirical part of our study, we employ the entrepreneurial self-efficacy construct. According to the theory and extensive research (Bandura, 1997), self-efficacy – individual's confidence that he/she can perform a task – is a strong predictor of behavior in many areas of human functioning. While there can be somewhat different definitions, in this paper by ESE (entrepreneurial self-efficacy) we mean self-

efficacy related to performing different entrepreneurial tasks. ESE has been a subject of many studies that demonstrated importance of this construct in entrepreneurship. It has been found to be positively associated with entrepreneurial capital (Erikson, 2002), with entrepreneurial intentions (De Noble et al., 1999) and with being a nascent entrepreneur (Arenius and Minniti, 2005).

Given the importance of the construct, many researchers proposed entrepreneurship education as a way to increase ESE (McGee et al., 2009). Incorporation of ESE in the pre- and post-measurement of entrepreneurship education programs could provide educators with better information about their programs' impact, about factors that influence ESE and its role (Wilson et al., 2007). For example, in the study done by Zhao, Seibert and Hills (2005), effects of perceived learning from entrepreneurship education, risk propensity and previous entrepreneurial experiences were fully mediated by ESE. Still, most ESE-related research suffers from using scales that contain only several items and from using a "total ESE" score instead of analyzing underlying dimensions (McGee et al., 2009). As a result, little is known about how specific teaching methods and contents influence different dimensions of ESE. With this paper we contribute to the literature by providing evidence of the impact on different dimensions of ESE of teaching through art. Taking into account our discussion of the previous section, we expect the following hypothesis to hold true:

***Hypothesis 3:** The strongest impact of the art-based workshop is on self-efficacy related to areas of creativity and managing uncertainty*

The last thing we would like to discuss before moving to the empirical part is relationships between unlearning, development of competences and change of self-efficacy. As Bandura

(1997) discusses, development of competence is one of the ways to augment self-efficacy. We expect this to also be the case with the workshop which we study empirically:

***Hypothesis 4a:** Better development of a particular competence is associated with more important self-efficacy change.*

According to the *Hypothesis 1b*, stronger unlearning should be associated with stronger competence development. And if both *Hypothesis 1b* and *Hypothesis 4a* hold true, then unlearning will positively impact self-efficacy via competence development. At the same time, direct connection between unlearning and change of self-efficacy is not obvious: unlearning can concern beliefs/knowledge which lead to overconfidence, but it can also concern limiting beliefs/knowledge leading to lower self-efficacy. Therefore, if we do not know situations of each student, *a priori* it is impossible to say in what direction unlearning will affect self-efficacy. Hence, we suggest that:

***Hypothesis 4b:** In average, unlearning does not directly lead to self-efficacy change; it can only influence self-efficacy via development of competences*

## METHODOLOGY

### Workshop

Empirical data necessary for testing of the developed hypotheses was collected during a workshop which took place at the beginning of September, 2015, and lasted 3 days. This workshop was a part of an entrepreneurship education program taught at a European business-school from September to December 2015 on two campuses. The same two instructors ran the workshop on both campuses. The first one is entrepreneurship professor, and the second one is

artist. Thus, competences from entrepreneurship and art worlds were merged in this workshop allowing for a proper account of both entrepreneurship and art specificities. The first author of this paper was not involved at all in the pedagogy of the workshop, whereas the second author was fully involved as professor. This complementary role was helpful to gain at the same time very precise and qualitative elements on the empirical field (through a diary used on a regular basis) as well as an external vision with some distance and neutrality.

The workshop consisted in following. By the end of the 3<sup>rd</sup> day students had to create a contemporary piece of art on the subject of climate, and in the evening of the 3<sup>rd</sup> day there was a *vernissage* with a number of external people invited. Students worked in groups of 4-5 people. During the 3 days there were a number of mini-workshops and mini-presentations during which students were learning and practicing different concepts from entrepreneurship and art. In particular, they were going to city streets to find materials and inspiration for their creations, they were creating, destroying what they had created and then creating again. There were numerous discussions between instructors and each team, and quite often instructors could be rather critical and pushing students further in what they were doing, making them unlearn. Because of the specificity of the approach students often had crises, felt frustration and other strong emotions, especially by the end of the first or second day.

As we have discussed, crises provide a fertile soil for unlearning and lead to more efficient learning. Moreover, students were working in groups on creation of something meaningful for all of them, and this additional requirement of co-creation was sometimes leading to quite complicated situations. Still, by the evening of the third day every team succeeded in creation of quite a nice piece of art. We also have to note that the workshop was run outside of the business

school, in a place often used by artists, so physical disruption of context also took place. Thus, all of the previously discussed elements necessary for unlearning were present.

### **Sample and Data Collection**

In total, 85 students attended the workshop, 51 male and 34 female. Students came from different backgrounds, some of them having several different experiences, even though most of them were business school students.

First survey was paper-based and students filled it out right before the workshop. The second survey was sent by email about one week after the workshop. One week delay was chosen so that extreme emotions possibly caused by the workshop could calm down allowing students to evaluate themselves more objectively. In total, 67 students (around 79%) filled out both first and second surveys, allowing us to compare their ESE before and after the workshop. 56.7% were male, 43.3% were female. 51 students had business-oriented background, 9 – technology-oriented, 13 – design/art-oriented (some students had reported several different backgrounds, and so we counted them separately).

With the first survey we collected data about students' gender, background, and "before workshop" levels of self-efficacy for each of the 32 different competences listed in Appendix A. With the second survey we measured, for each of the 32 items, "after workshop" levels of self-efficacy, sense of development of competences and strength of unlearning. As a basis for our ESE scale we chose to follow Moberg (2013). Moberg developed his scale by using three well-recognized ESE scales as a basis (Chen, Greene, & Crick, 1998; DeNoble, Jung, & Ehrlich, 1999; McGee, Peterson, Mueller, & Sequeira, 2009), but replaced specific entrepreneurial jargon so that people with no business background can understand all the items. Indeed, before students

get involved in the program they might be unable to understand that jargon if they have not a business-school background, and therefore we cannot be sure that they evaluate the same thing before and after the entrepreneurship education.

We modified the Moberg's scale in order to include several items that students identified as important; the full list is provided in Appendix A. Before the program's start we sent students an email asking what kind of competences they would like to develop and what they deem as important for them. After reviewing and summarizing their responses we added items that now have numbers 25, 29, 30, 31 and 32 in Appendix A. The last item is not really a competence, but we decided to also include it in the list. We are aware that our resulting scale can be less reliable if we were to use an average ESE score, as some authors did. But our intention was to obtain a list of items that would represent as much as possible the many different potential outcomes of the workshop, so that we can analyze the impact of the workshop on those different dimensions.

For the evaluation of competence development the following formulation was used: "Please assess, for each of the items provided below, how much **you have developed your competences** since the beginning of the program". The scale was 5-point Likert scale with items "Not improved" (=1), "Slightly improved" (=2), "Moderately improved" (=3), "Improved quite well" (=4), "Significantly improved" (=5); numbers in parentheses are those used for analysis, assuming the scale to be interval. For the evaluation of unlearning the following formulation was used: "Please assess, for each of the items provided below, how true it is that from the beginning of the program you found your previous knowledge, beliefs or ways of thinking to be limiting or inefficient, and so you stopped using them (**=unlearned**)". The scale was 5-point scale with items "not true" (=1), "rather not true" (=2), "cannot tell", "rather true" (=3), "true" (=4); numbers in parentheses are those used for analysis, assuming the scale to be interval. The part of the survey

intended for the measurement of the self-efficacy was created by following (Bandura, 2006), with the scale items for responses ranging from 0 (no confidence at all) to 100 (absolutely confident).

## RESULTS

### Unlearning

In order to test the *Hypothesis 1a* (which is “*If unlearning takes place, then most likely it is associated with consequent learning*”), we selected cases where students marked that they either “Rather unlearned” or “Unlearned”, and looked at corresponding reported levels of competence development. Only in 41 cases (5.6%) students unlearned without consequent competence development, and in other 723 cases (94.6%) competence development took place to various extents. Therefore our data confirms the *Hypothesis 1a*.

To test the *Hypothesis 1b* (“*Stronger unlearning is associated with more intense learning*”) we calculated the correlation coefficient between the *unlearning* and *competence development* variables by using data for all the competences and the coding scheme presented in the methodology section. The resulting value of 0.66 indicates that there is indeed a very strong correlation, and hence the *Hypothesis 1b* holds true as well.

*Hypothesis 2* suggests that “*art-based entrepreneurship education strongly stimulates unlearning among students*”. Table 1 shows how many students unlearned and did not unlearn. It was important to provide information for different competences since, as we can see from Table 1, proportion of students who unlearned depends on which competence is considered, and the highest rates are for competences related to areas of creativity and uncertainty management. Therefore we can conclude that the *Hypothesis 2* is mainly confirmed (as there are still students

who did not unlearn or could not decide), with a clarification that unlearning occurs mainly in areas of competence directly targeted by the workshop.

**Table 1.** Number of students who, for each corresponding competence, did not unlearn, unlearned and could not decide. “Not Unlearned” includes those who marked “not true” and “rather not true” in the part of the survey asking whether student unlearned, and “Unlearned” includes those who marked “rather true” and “true”. Table is sorted by number of students who unlearned.

<b>Competence \ Unlearning status</b>	<b>Not Unlearned</b>	<b>Unlearned</b>	<b>Cannot Tell</b>
Think outside the box / be open-minded	14	38	14
Brainstorm (come up with) new ideas	11	36	19
Learn from failure	15	36	15
Manage uncertainty in projects and processes	18	34	14
Tolerate unexpected change	17	34	15
Work in a team	13	34	19
Identify creative ways to get things done with limited resources	16	33	17
Exercise flexibility in complicated situations when both means and goals are hard to establish	11	32	23
Identify ways to combine resources in new ways to achieve goals	12	32	22
Work productively under continuous stress, pressure and conflict	12	32	22
Identify opportunities for new ways to conduct activities	16	31	19
Improvise when I do not know what the right action/decision might be in a problematic situation	21	30	15
Clearly and concisely explain verbally/in writing my ideas in everyday terms	18	28	20
Network (i.e. make contact with and exchange information with others)	18	27	21

<b>Competence \ Unlearning status</b>	<b>Not Unlearned</b>	<b>Unlearned</b>	<b>Cannot Tell</b>
Develop and maintain passion and curiosity for a project	17	26	23
Communicate and negotiate with others in order to achieve project goals	16	25	25
Get others to identify with and believe in my visions and plans	19	25	22
Lead and manage a team	15	24	27
Persist in face of setbacks/unfavorable conditions	22	22	22
Set and achieve project goals	24	22	20
Conduct analysis for a project that aims to solve a problem	20	19	27
Manage time in projects	26	19	21
Market and sale a product or service	23	19	24
Design an effective project plan to achieve goals (e.g. business plan)	25	18	23
Identify potential sources of resources (e.g. sources of funding)	18	17	31
Use or understand technology (e.g. basics of programming) necessary to start a technology-dependent business	21	17	28
Form partnerships in order to achieve goals	23	14	29
Control costs for projects	27	12	27
Put together the right group/team in order to solve a specific problem	21	12	33
Estimate a budget for a new project	31	7	28
Read and interpret financial statements	35	5	26
Perform financial analysis	39	4	23

### **Impact of the Workshop on Multidimensional Entrepreneurial Self-Efficacy**

Table 2 summarizes the workshop's impact on self-efficacy related to different entrepreneurial competences. In many cases there was a significant change of self-efficacy, with mean change larger than 10 and mainly medium effect size. Self-efficacy increased the most for competences

related to creativity, improvisation and handling of uncertainty. This, together with the results from Table 1, confirms the *Hypothesis 3* (which suggests that *the strongest impact of the art-based workshop is on competences related to creativity and uncertainty management*). Also the networking competence was affected significantly, which must be due to a mini-workshop not discussed in this paper. At the same time, even though competences related to communication and work with people also exhibit growth of self-efficacy, the effect size is small (about 0.2-0.3). The same is true for competences related to handling failures and setbacks. This can be explained by the fact that through this workshop students face some of the really hard challenges related to these competences, and as a result they realize that there are a lot of things they do not yet master.

**Table 2.** Impact of the workshop on different entrepreneurial competences: mean change of self-efficacy, Cohen's D (=effect size, see (Cohen, 1992) for details) and p-value from match-pairs t-tests.

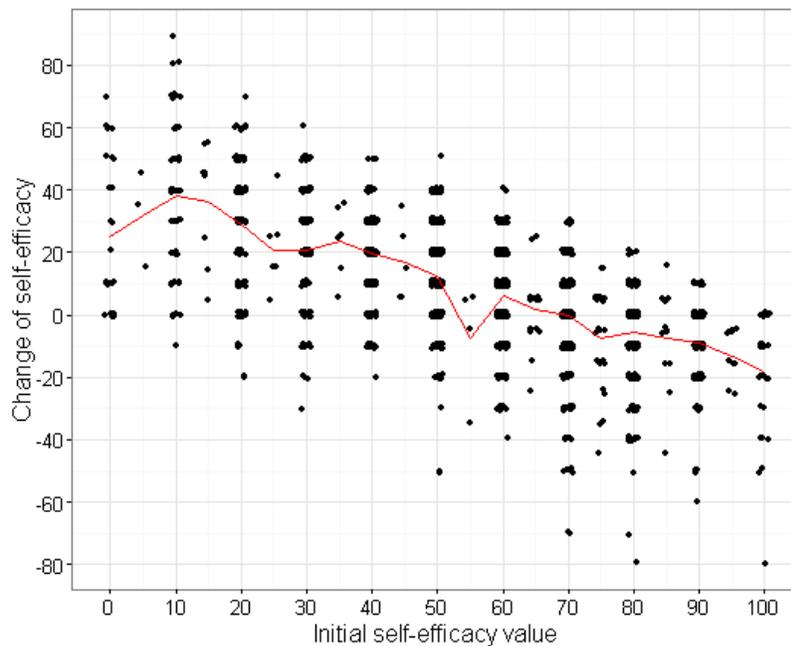
Competence	Mean SE change	Cohen's D	p-value
Identify creative ways to get things done with limited resources	16.09	0.82	1.33E-08
Identify ways to combine resources in new ways to achieve goals	12.81	0.78	4.42E-08
Manage uncertainty in projects and processes	12.42	0.61	1.07E-05
Improvise when I do not know what the right action/decision might be in a problematic situation	11.85	0.57	2.04E-05
Exercise flexibility in complicated situations when both means and goals are hard to establish	11.31	0.52	1.54E-04
Identify opportunities for new ways to conduct activities	11.15	0.67	2.53E-06
Network (i.e. make contact with and exchange information with others)	11.09	0.55	3.76E-05
Tolerate unexpected change	10.46	0.50	1.53E-04

<b>Competence</b>	<b>Mean SE change</b>	<b>Cohen's D</b>	<b>p-value</b>
Identify potential sources of resources (e.g. sources of funding)	10.31	0.49	2.26E-04
Work productively under continuous stress, pressure and conflict	9.84	0.50	2.47E-04
Market and sale a product or service	9.68	0.57	3.26E-05
Conduct analysis for a project that aims to solve a problem	9.19	0.49	2.61E-04
Design an effective project plan to achieve goals (e.g. business plan)	8.57	0.46	5.74E-04
Get others to identify with and believe in my visions and plans	8.13	0.37	4.33E-03
Use or understand technology (e.g. basics of programming) necessary to start a technology-dependent business	7.87	0.27	3.82E-02
Manage time in projects	7.30	0.40	2.12E-03
Put together the right group/team in order to solve a specific problem	7.30	0.43	1.19E-03
Form partnerships in order to achieve goals	6.94	0.39	3.21E-03
Persist in face of setbacks/unfavorable conditions	6.56	0.28	2.78E-02
Estimate a budget for a new project	6.07	0.36	7.30E-03
Brainstorm (come up with) new ideas	6.06	0.35	6.56E-03
Read and interpret financial statements	5.41	0.29	2.80E-02
Learn from failure	5.40	0.30	2.19E-02
Clearly and concisely explain verbally/in writing my ideas in everyday terms	5.08	0.31	2.16E-02
Communicate and negotiate with others in order to achieve project goals	4.84	0.25	4.96E-02
Lead and manage a team	4.22	0.32	1.29E-02
Control costs for projects	3.28	0.16	2.03E-01
Set and achieve project goals	2.97	0.17	1.78E-01

Competence	Mean SE change	Cohen's D	p-value
Think outside the box / be open-minded	1.85	0.11	3.78E-01
Develop and maintain passion and curiosity for a project	1.80	0.08	5.25E-01
Perform financial analysis	1.75	0.09	4.76E-01
Work in a team	1.67	0.11	4.16E-01

### Impact of Initial Level of Entrepreneurial Self-Efficacy

As for the impact of initial level of self-efficacy, from Figure 1 it follows that students with initially low self-efficacy tend to experience its growth thanks to the workshop, and those with initially high levels of self-efficacy tend to experience its decline. Level of self-efficacy equal to 70 approximately distinguishes the two groups.



**Figure 1.** Dependence of magnitude of self-efficacy change on initial value of self-efficacy. Solid line shows mean value of the self-efficacy change for each of the initial values. Positions of

points were slightly modified (jitter added) in order to provide a better representation of the number of dots corresponding to each value.

Explanation of this decline most likely lies in initial overestimation by students of their capabilities, and once they are confronted with the non-routine and challenging demands of the workshop, they start evaluating their capacities more realistically. At the same time, those with initially relatively low self-efficacy discover that they can successfully perform tasks which they would otherwise see as too difficult. This result is coherent with previous research showing that students with initially low entrepreneurial intentions can higher them by the end of the program, and those with high intentions can lower them (Schutz, Fayolle, & Danner, 2015). As self-efficacy impacts intentions, one would expect that lowering of ESE would lead to lowering of intentions. At the same time, such a decline can be just a statistical phenomenon, known as regression to the mean. Unfortunately, the methodology which we used does not allow to correct for it properly as a control group is needed.

### **Relationships between Unlearning, Competence Development and ESE change**

In order to test the *Hypothesis 4a* (which suggests that *better development of a particular competence is associated with more important self-efficacy change.*) we performed regression analyses for each competence (final SE was DV, competence development was IV, and initial SE was controlled). In all but one cases p-values were lower than 0.05, thus confirming the *Hypothesis 4a*. In order to save space we do not provide data for each competence. Instead, with Table 3 we visually demonstrate how self-efficacy change is related to competence development (the whole set of data, for all competences, was used here).

**Table 3.** Mean total ESE change for different levels of competence development

<b>Level of competence development</b>	<b>Mean self-efficacy change</b>
Not improved competence	0.288000
Slightly improved competence	4.563830
Moderately improved competence	7.982456
Improved competence quite well	15.194064
Significantly improved competence	20.851064

*Hypothesis 4b* was also confirmed. Regression analysis with final SE as DV, competence development as IV, and initial self-efficacy being controlled indicated that relationship between unlearning as SE was significant at 0.05 level in almost all cases. Yet, as further analysis demonstrated, it was only because competence development acts as a mediator. If the level of competence development is controlled, relationship between unlearning and self-efficacy disappears.

## **DISCUSSION**

With this study we advance entrepreneurship education research in two directions, both conceptually and empirically. First of all, we highlight the need for *unlearning*. This concept, while being well-developed in organizational studies (e.g. see Becker, 2005), somehow received very little attention in entrepreneurship and entrepreneurship education research. It is surprising, given the consideration given to entrepreneurial learning on the one hand, and the specificity of entrepreneurship education on the other hand. Indeed, possibly there is no other field where students would need to *unlearn* more than they have to when they learn entrepreneurship. Entrepreneurship courses often seek to help students give up old ways of thinking and doing (that

is, to unlearn!), and to develop a new vision. Therefore, it is important to study unlearning both conceptually and empirically in this very particular context of entrepreneurship education.

Having acknowledged importance of unlearning, we continued by considering usage of art practices in entrepreneurship education as a great way to foster and teach unlearning. This way we contribute to the research stream which advances usage of art practices for entrepreneurship teaching. There is a lack of studies showing the need for and the efficiency of this kind of education when it comes to entrepreneurship. With our study we conceptually and empirically demonstrate that methods found in art can be extremely useful in fostering unlearning, especially in areas of creativity and uncertainty management.

We proposed a number of hypotheses, and all of them were proved by our empirical investigation. First of all, we confirmed that, within the scope of entrepreneurship education, unlearning is strongly associated with development of competences. More precisely, not only unlearning almost always goes “hand in hand” with development of competences, but also deeper unlearning is followed by more intense learning. The studied art-based workshop indeed proved to be a great way to stimulate unlearning of students, which turned out to be the most intensive in case of competences related to management of uncertainty and creativity. Growth of self-efficacy was the most noticeable for the same two areas. Finally, we found that unlearning did not have a direct impact on self-efficacy, but rather was mediated by perception of competence development.

These results indicate that unlearning indeed has a very important role in learning entrepreneurship, at least as far as tasks related to creativity and uncertainty management are concerned. Consequently, attention should be paid not only to learning, but also to unlearning,

and as our research indicated, art-based entrepreneurship education can be very helpful in this. Importantly, similar teaching approaches can be useful for teaching entrepreneurship as everyday practice or method (Blenker, Korsgaard, Neergaard, & Thrane, 2011; Sarasvathy & Venkataraman, 2011), independently from venture creation.

Unfortunately, there are certain limitations which we could not overcome in our study at this stage. First of all, the measure which we used to collect data related to unlearning needs to be improved. Indeed, there are too many students who could not evaluate if they unlearned, and quite possible it was due to formulation of the question which was not easy to understand. Secondly, the number of students who followed the workshop was rather small (and also there was not enough diversity) which somewhat hindered reliability of some of the statistical tests which we used, and so we could not perform a more detailed analysis. Thirdly, we did not evaluate if students acquired the unlearning skill which they could use in other situations. While they could unlearn during the workshop, currently it is unclear if they understood and learned the “unlearning methodology” which was used. And, as our discussion in the theoretical part indicates, this “unlearning skill” seems to be important for entrepreneurial activity. Finally, we did not have a control group, so it is difficult to say if other kind of entrepreneurship education would have the same effect. Having listed these shortcomings, we hope to be able to overcome them in our future studies and to produce more detailed results.

## **CONCLUSION**

With this paper we attract attention of researchers working in the entrepreneurship education field to the importance of unlearning and to the potential of art-based education. We argued theoretically and demonstrated empirically that unlearning is strongly associated with learning,

and showed that art-based entrepreneurship education can be a great way to stimulate unlearning and develop entrepreneurial self-efficacy, especially in areas of creativity and managing uncertainty. We hope that more research will be done with the purpose to understand the role of unlearning and how to teach, both in relation with teaching through art and without it. And we hope that art practices will make their way to entrepreneurship classrooms, as they seem to be a great way to learn entrepreneurship as method.

Art can be extremely useful not only for aesthetic purposes. Maybe using some of its principles in our research could lead us to new creative solutions of some of the well-known world-old problems?

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**APPENDIX A**

## List of 32 entrepreneurial competences used in the study

- 1 Lead and manage a team
- 2 Identify ways to combine resources in new ways to achieve goals
- 3 Improvise when I do not know what the right action/decision might be in a problematic situation
- 4 Manage time in projects
- 5 Tolerate unexpected change
- 6 Brainstorm (come up with) new ideas
- 7 Put together the right group/team in order to solve a specific problem
- 8 Conduct analysis for a project that aims to solve a problem
- 9 Read and interpret financial statements
- 10 Form partnerships in order to achieve goals
- 11 Persist in face of setbacks/unfavorable conditions
- 12 Identify potential sources of resources (e.g. sources of funding)
- 13 Network (i.e. make contact with and exchange information with others)
- 14 Set and achieve project goals
- 15 Perform financial analysis
- 16 Learn from failure
- 17 Get others to identify with and believe in my visions and plans
- 18 Manage uncertainty in projects and processes
- 19 Design an effective project plan to achieve goals (e.g. business plan)
- 20 Exercise flexibility in complicated situations when both means and goals are hard to establish
- 21 Clearly and concisely explain verbally/in writing my ideas in everyday terms
- 22 Work productively under continuous stress, pressure and conflict
- 23 Think outside the box / be open-minded
- 24 Control costs for projects
- 25 Communicate and negotiate with others in order to achieve project goals
- 26 Identify opportunities for new ways to conduct activities
- 27 Estimate a budget for a new project
- 28 Identify creative ways to get things done with limited resources
- 29 Market and sale a product or service
- 30 Use or understand technology (e.g. basics of programming) necessary to start a technology-dependent business
- 31 Work in a team
- 32 Develop and maintain passion and curiosity for a project