



Article

# What Potential Entrepreneurs from Generation Y and Z Lack-IEO and the Role of EE

Julita Eleonora Wasilczuk \* and Anita Richert-Kaźmierska \*

Faculty of Management and Economics, Gdansk University of Technology,  
80-233 Gdańsk, Narutowicza 11/12, Poland

\* Correspondence: Julita.Wasilczuk@zie.pg.edu.pl (J.E.W.); Anita.Richert@zie.pg.edu.pl (A.R.-K.);  
Tel.: +48-664-166-293 (J.E.W.); +48-604-967-060 (A.R.-K.)

Received: 29 September 2020; Accepted: 13 November 2020; Published: 16 November 2020



**Abstract:** This paper addresses the issue of individual entrepreneurship orientation (IEO) and entrepreneurship education (EE), which are both important for modern economic development. Intergenerational differences in these areas were discussed, especially characteristics of Generations Y and Z. The results of research conducted among 757 Polish students showing their IEO are presented. 80% of respondents displayed high levels of proactivity (primarily directed at meeting their own needs), whilst only 56% exhibited innovativeness and only 47% risk-taking. On the basis of the research results, the authors formulated recommendations for entrepreneurship education, aimed at strengthening IEO among representatives of Generations Y and Z.

**Keywords:** individual entrepreneurial orientation; entrepreneurial education; intergenerational differences

## 1. Introduction

Every economy is aware these days of the potential hidden in entrepreneurial individuals. It is worth identifying and motivating them to set up their own businesses. This identification, however, is not so simple. There is no single test, pattern, or even description that would indicate who can cope with running a business and who is unable to face risks and uncertainty, the need to innovate, and everything that an entrepreneur has to do in his/her company.

Research among potential entrepreneurs, which students certainly are, most often concerns entrepreneurial intentions [1]. It is worth confronting these intentions with a measure that will determine whether a given person will be able to manage their own business successfully. One of the measures of entrepreneurial ability is the individual entrepreneurial orientation (IEO). Research on individual entrepreneurial orientation is based on the well-known entrepreneurial orientation (EO) model, which has been studied for more than 30 years. The assumption that some enterprises behave in a more entrepreneurial way than others is the foundation of this model [2]. Miller and his followers developed a way to measure the level of success of a business, based on innovativeness, proactivity and risk taking [3]. For several years, researchers have also been discussing whether it is possible to study EO at an individual level [4]. It can be assumed that some people behave in a more entrepreneurial way, that is, they are more innovative, proactive and show higher risk acceptance [4]. Such people have a better chance of success in business. Some researchers state that the IEO is also correlated with entrepreneurial intentions [5,6]. Although the measures of IEO show a number of shortcomings, including the fact that the responses are self-reported (which means that they are not objective), the latest research reports confirm that their credibility is satisfactory [7].

This article describes the results of the research conducted among 757 Polish students, showing their IEO. This is considered within the context of the characteristics of Generation Y and Z. We also

show how the dimensions of IEO could be modified by entrepreneurial education (EE). The literature provided proves that this can be done [8]. We also propose utilising IEO research methods to measure the IEO levels of students, in both standard and higher education. This will allow the appropriate method and content of EE to be established, in order to strengthen the IEO components that were identified as weaker.

## 2. Entrepreneurial Orientation and Its Individual Cousin

Entrepreneurial orientation (EO) is a concept that has become a “household name” of entrepreneurship research. The EO concept, developed more than 30 years ago, was originally intended to measure entrepreneurial orientation at a firm level. Danny Miller [2] is considered to be the father of this concept (although not the father of the name). He defined an entrepreneurial firm as: “one that engages in product-market innovation, undertakes somewhat risky venture and is first to come up with ‘proactive’ innovations, beating competitors to the punch” ([2], p. 771). An entrepreneurial firm defined this way can achieve success thanks to an appropriate strategic approach. However, Miller did not name this concept; the concept of entrepreneurial orientation was introduced later, along with the clarification of the way of measuring it. The starting point was the observation that entrepreneurship is a basic trait of high performing firms [9]. Covin and Slevin [3] proposed to measure the entrepreneurial orientation of a company based on three dimensions: innovation, proactivity and risk taking, as Miller wrote in his article more than 30 years ago. Since then, research on EO has continued to develop, including ways to measure it. The 10-degree EO measurement scale developed by Miller/Covin and Slevin includes a set of three questions for each of the dimensions. The proposed two additional dimensions are also evaluated on a 10-degree scale, but on the basis of only one question in each case.

The impact of EO on business performance has been proven on numerous samples, for different entities, small and large, run by women, or in the countryside, as well as for government units [8]. The research on EO was conducted not only in the area of entrepreneurship, but also in the area of human resource management [10], family business (e.g., [11,12]), supply chain management [13], or even ethical problems [14]. This diversity of research is due to the ease with which the original concept can be used. Andrade et al. [15] calculated that by 2017, 1062 articles containing the term entrepreneurial orientation in their title had been published in the Web of Science journals.

One of the areas in which the EO has been used for some time is the individual entrepreneurial orientation survey. The introduction of the EO concept into the research on individual entrepreneurship was due to the lack of unambiguous, recognised research methods related to individual entrepreneurship.

An early search for the answer to the question of who has the potential/intentions (these are of course two different concepts, combined together here to simplify the argument) to successfully set up one’s own business was based on psychological traits research. However, it did not provide clear answers, as it was not known whether psychological traits must occur simultaneously or if they can complement each other. This approach has been criticised by Gartner [16], who suggested focusing on the actions of the entrepreneur rather than on their personality. However, personal characteristics are still an integral part of entrepreneurship research. Much attention is paid to motivations and intentions in these studies; the latter are analysed based on Ajzen’s theory of planned behaviour [17] and/or Shapero’s model of entrepreneurial event [18]. This brief overview of research approaches in the field of entrepreneurship shows that the way of proceeding and attitudes towards certain phenomena are very important in the entrepreneurial process (understood as the creation of a company/undertaking). Therefore, another conclusion, described by Bolton and Lane, is that the dimensions used for firm-level EO research could be used for studying individual entrepreneurial orientation [4]. It was only necessary to adapt the individual items of these dimensions to the research of individuals, as opposed to firms in the case of the original scale. The proposed set of questions was

validated and tested by Bolton and Lane [4]. The authors developed an IEO measure based on three dimensions (innovativeness, proactivity and risk-taking).

In research on EO, the verification plane is business performance, measured by financial (most often based on self-assessment) and non-financial measures [19]. Nevertheless, there are also studies that indicate that EO is both a predictor of success (for example growth) and one of its outcomes [20].

In the case of IEO, entrepreneurial intentions can and do constitute a platform for verification [5,6]. The research of Koe [6] showed that proactivity and innovativeness of students influences their entrepreneurial intentions. However, he did not find confirmation for the tendency to take risk. Robinson and Stubberud [5], in turn, examined MBA students before and after the course, and stated that the course contributed to raising the level of proactivity and innovativeness, as well as the intention to start a business. Also, these two areas turned out to be correlated with the intentions to establish a firm. This dependency was not observed in the case of risk taking.

We will not validate the method, as it has already been validated [4,21]. We also do not want to check whether the IEO affects enterprise intent (EI), as it is not the purpose of the paper. We assume that such a correlation exists and has been confirmed in research, both at the level of college or university students [6] and at the level of secondary school pupils [22].

Current literature on IEO lacks research that would indicate differences between specific components of Generation X, Y and Z's individual EO. Conducting research in this area would be a particularly ambitious project, however comparative analysis has been done, to provide a somewhat accurate portrayal of the situation.

### 3. IEO Components in the Baby Boomer, X, Y and Z Generations

Broadly understood entrepreneurial mindsets, including both entrepreneurial intentions and individual entrepreneurial orientation, are to a large extent shaped by external factors, including the education process. However, the impact of other external factors, such as the general social, cultural, economic and historical environment, the methods of upbringing, the rules and norms taught, etc., cannot be excluded. It follows that each generation (individuals born and living at approximately the same time) is exposed to very similar external factors. In today's global times, even the differences between countries are blurring. Thus, social attitudes towards entrepreneurship and entrepreneurial behaviour are also subject to differentiation [23], reflecting the reality of the period of growth of a given generation and being a product of experience gained by its representatives [24].

At present, we have four generations in the labour market—the oldest are the Baby Boomers (1947–1964), while the subsequent ones are: Generation X (1965–1980); Generation Y (Millennials, 1981–1995); and Generation Z (1996 and later) ([25], p. 29). It is worth noting here that the boundaries between generations are quite fluid and the differences between ranges provided by different authors amount to several years [26].

Baby Boomers are a generation whose representatives play key roles in the contemporary economy and politics [27]. They are active professionally and socially, and they use available technological solutions in their daily work [28,29]. They are committed to work, loyal to their workplace (employers and co-workers) and steadfast in pursuing their goals. B. Kupperschmidt [30] describes baby boomers as “not only workaholics, but also strong-willed individuals who are concerned with material gain”. The values and beliefs of this generation were shaped by, among others, the need for intensive work during the post-war reconstruction of the economy or the sense of threat resulting from the ongoing Cold War and the military and economic race between world powers. According to J. Coates ([31], p. 85), also “their sheer numbers motivated them to do whatever they could to become successful and to stand out from the crowd”.

Generation X is called “the latch-key kids”. According to B. Kupperschmidt ([30], p. 69), this generation “inherited Boomers' social debris: self-absorbed parents, soaring national debt, an educational system that emphasized social skills and self-esteem rather than academic achievement, an anti-child society, and reality driven television shows and movies”. The representatives of Generation

X adapt well to change, are assertive and autonomous, as well as have well-developed self-control skills [32]. They approach work in a different way than the baby boomers. They strive to maintain a work-life balance in professional and family life [31], and they are more willing to choose self-employment than corporate work, as well as question the authorities and the status quo ([33], p. 371).

According to D. Tapscott [34], Generation Y's representatives perform well as initiators and leaders. They are individualists with a desire for greater flexibility in work and personal life than in the case of the generations described above [34,35]. They are characterized by the need to express themselves and have freedom of choice, the need to adapt the environment to their own needs, the need for constructive criticism, the need to cooperate in teams in which they feel comfortable and the freedom to use modern technologies ([36], p. 66). It is a generation that grew up in the conditions of a globalizing economy, with permanent contact with new technologies, a growing pace of life and a transformation of social relations. The high self-confidence of Generation Y is the result of, among other things, growing up in the most child-centred time in human history [37–39].

Generation Z, which is only entering the education system and the labour market, is characterized by a “connection” with modern technology [25,40] and openness to cultural diversity, as well as the need for constant contact with others and peer affirmation [41]. Generation Z not only uses the content of the Internet, but they also create and control it ([42], pp. 750–753). “They prefer transparency, self-reliance, flexibility and personal freedom ( . . . ). They expect to be informed, to be allowed to be retorted, and to have their responses heard and acknowledged” [43]. They have extensive networks of relations in the virtual world, they communicate at a distance, and at the same time they seek direct interpersonal relations and the possibility of teamwork [44].

The diversity of the representatives of particular generations in terms of attitudes towards work and entrepreneurial motivations, highlighted by researchers [45–48] results to a large extent from different attitudes towards proactivity, innovativeness and risk-taking; see Table 1.

Generation Y is the least proactive and least ready to take risks. Its representatives have acquired a sense of continuous change and awareness of insecurity; therefore they focus more on the search for personal happiness and self-fulfilment than on a professional career and the creation of new companies ([37], p. 31). They value interesting work and avoid work that requires significant commitment and effort ([49], pp. 96–97).

The baby boomers and Generation X [50] are definitely more proactive and risk-taking than Generation Y. In the countries of the former “Eastern Bloc”, the political transformation triggered increased activity and innovativeness in both groups. By forcing people to adapt to new conditions and deal with rapidly rising unemployment, entrepreneurial actions were triggered among a large part of the society. Their effect was, for example, a boom in the creation of small and medium enterprises (SME).

Preliminary results of research on Generation Z indicate that its representatives will also present a higher level of IEO than Generation Y. “That is the generation more self-aware, self-reliant and driven than the previous ones. They are intuitively innovative, uber-productive, goal-oriented and realistic. In a word, they are entrepreneurial” [51].

**Table 1.** Individual entrepreneurship orientation (IEO) components—intergenerational differences.

	Baby Boomers	Generation X	Generation Y	Generation Z
Proactivity	Involvement in professional matters (called “the workaholic generation”), very often at the expense of family life; a sense of responsibility for their lives and for the development of the economy.	Striving to maintain a work-life balance; a sense of responsibility for oneself and one’s family; involvement in the performed professional tasks (running a company).	Concentration on meeting one’s own, current needs (egocentrism); a sense of responsibility first and foremost for oneself.	Understanding and seeking solutions to global problems (environmental protection, social responsibility in the activities of economic operators, security, etc.); taking current decisions with a view to the future.
Innovativeness	Operating within formalised structures of bureaucratic organisations; respect for authorities, limiting independence in creating and implementing innovative solutions.	Readiness to break stereotypes; searching for new ways to operate and satisfy customer needs; preferences for work in one’s own company.	Openness to new ideas; searching for innovative solutions to meet one’s own needs; mobility and teamwork; preference for working in corporations with a designed career path, reluctance towards forming ties with one (own) company.	Openness to change and new ideas; a pragmatic approach to solving problems, using a global knowledge base and the latest technologies.
Willingness to take risk	High willingness to take risks; making decisions under conditions of restricted access to information; consistent pursuit of intended objectives (multiple start-ups, despite previous failures).	Willingness to take risks; the use of analytical tools to optimise decision-making.	Reluctance to take risks in one’s working life; openness to “adventure” in personal life; low level of commitment to the workplace (company)—“abandonment” of employment (closure of the company) in conditions requiring commitment or in crisis.	Rationalism in action; risk reduction through in-depth analysis of data from various sources (use of modern techniques of data acquisition and analysis); readiness to take risks, depending on the expected benefits.

Source: Own elaboration.

#### 4. The Individual Entrepreneurial Orientation of Polish Students

The methodology proposed by Bolton and Lane [4], based on the three dimensions proposed by Milles/Covin and Slevin (innovativeness, risk-taking and proactivity) was used in our study. The above-mentioned authors adapted the questions, which were originally used for the organisation-level EO survey, to the research needs of individual scale EO. This required them to re-write the questions—originally concerning firms—into questions concerning individual respondents, while at the same time making sure they were in the appropriate context. In the case of students, the context of a company does not apply, therefore some of the original questions related to firms were replaced by questions related to “a project”, assuming that this would be more understandable for students. To some extent it does not matter which context is used to formulate questions; it is the attitude of young people that is being researched. Either they are innovative, proactive and risk-taking individuals, or not, irrespective of the context.

In the research described below, the set of questions proposed by Bolton and Lane [4] was treated as a model, however some modifications were also introduced. First of all, the number of questions for each dimension was evened out. Secondly, after conversations with a few young individuals, some questions were modified to suit Polish conditions. It is not common to employ project-based learning in the Polish education system, therefore not all students were able to understand the context surrounding project-based work. Therefore, we decided to change the point of reference from projects,

which have been used in the work of Bolton and Lane [4] to examples from the private area of functioning. The questions used for study can be found in Table 2.

**Table 2.** Questions used in the study of Polish students.

<b>INNOV1</b>	You usually choose what's tried and tested/known.
<b>INNOV2</b>	In the last three years, your life has changed more than the life of your friends.
<b>INNOV3</b>	Among your friends, you are the person who uses new products, applications, programs or services.
<b>PROACT 1</b>	You always act in anticipation of future problems, needs and the necessity of changes.
<b>PROACT 2</b>	You are the animator of new activities among your friends.
<b>PROACT 3</b>	You always plan ahead.
<b>RISK 1</b>	In the situation of the necessity to make a decision, with a high degree of uncertainty of its result, you take the attitude of "let's wait and see".
<b>RISK 2</b>	In the situation of the need to make a decision, with high uncertainty of its result, you take a bold and aggressive attitude to maximize the probability of using potential opportunities.
<b>RISK 3</b>	You like to make bold decisions, even going into unknown actions.

Source: Own elaboration.

A Likert scale was used to measure the self-assessment of each of the dimensions, where  $-2$  meant "definitely no",  $-1$  "no",  $0$  "neither yes nor no";  $1$  "yes"; and  $2$  "definitely yes" (except for question INNOV1, in which the affirmative answer meant "no inclination to innovate"). Averages from the responses of each person were calculated for every dimension of IEO. When the value was above zero, it was assumed that the interviewee exhibits the given attitude. The rest of the people were assumed to lack the given attitude. This method allows educators to measure IEO levels in students in a very straightforward way.

The questionnaires were handed over to the students personally during the obligatory classes at three universities (Gdańsk University of Technology, University of Gdańsk and Łomża State University of Applied Sciences). The questionnaire was paper-based and the researchers were present at the time of its completion. The respondents were students of economics and management faculties of the first semester of the first- and second-degree studies. The survey was conducted in 2017, and 757 questionnaires were collected from people born between 1993 and 1998 (54%) and after 1998 (46%). This means that the respondents can be included in the generation from the turn of the generation Y and Z, with the majority belonging nevertheless to Generation Y.

The presented results confirm the general characteristics of the Y and Z generations (i.e., the ones studied). They showed a high level of proactivity; in the study it amounted to 80%. The characteristics of these generations, however, indicate that this proactivity is primarily aimed at satisfying one's own needs (see Table 3). It is therefore difficult to say whether their answers to proactivity questions were provided from an egocentric or from a more neutral point of view. From the point of view of innovativeness, the situation was slightly worse: a little over half of the respondents classified themselves as innovative (56%). When analysing the questions asked, it can be concluded that they were largely related to personal innovative experiences (use of new products, changes in life, etc.). Therefore, such a low result may cause some concern. The scores related to the third dimension of the IEO, risk-taking, were lowest, as less than half of the students (47%) declared that they are able to face the risk. As the description of Generation Y shows, risk aversion is its characteristic feature. In the case of Generation Z, the attitude to risk looks much better; their possibilities and willingness to analyse them in depth and the possible benefits that may result from taking given actions may be the driving force for undertaking uncertain and risky projects.

Looking at the results from the perspective of gender, it appears that women defined themselves as more proactive and innovative but much less willing to take risks than men (Table 4).

**Table 3.** Proactivity, innovativeness and risk-taking among Polish students.

	PROACTIVITY			INNOVATIVENESS			RISK-TAKING		
	Yes	No	No ans.	Yes	No	No ans.	Yes	No	No ans.
General	79%	20%	1%	56%	43%	1%	47%	52%	1%

Source: Own elaboration.

**Table 4.** Proactivity, innovativeness and risk taking (gender perspective).

	PROACTIVITY			INNOVATIVENESS			RISK-TAKING		
	Yes	No	No ans.	Yes	No	No ans.	Yes	No	No ans.
<b>Women (n = 469)</b>	84%	15%	1%	59%	40%	1%	42%	58%	0%
<b>Men (n = 260)</b>	71%	28%	1%	50%	50%	0%	55%	43%	2%
<b>No ans. (n = 28)</b>	81%	15%	4%	52%	44%	4%	54%	43%	4%
	Chi2: $p < 0.001$			Chi2: $p < 0.0001$			Chi2: $p < 0.001$		

Source: Own research.

The research results cited above were intended only to indicate a simple method of assessing individual IEO components. Our goal was not to conduct a deeper analysis of the obtained results. We also did not compare these results with those obtained in a few studies in other countries. However, they can already be an indication for educators in Poland, who should pay more attention to innovativeness and risk-taking, while being less concerned with proactivity education [52,53].

### 5. Entrepreneurship Education as a Support for IEO in the Perspective of Intergenerational Diversification

The issue of entrepreneurship education (EE) has been of interest to researchers for many years [54–56]. There is a discussion about how to teach (how?), who is to be the recipient (for whom?), what is to be taught (what?), how to carry out the evaluation (for which results?) and what the purpose of such education is (why?) [54,56–58].

The research concerns, among other things, the specificity of EE, the relationship between EE and entrepreneurial intentions [59], its impact on personal or economic growth [60,61] and teachable competences [62].

The studies on the impact of EE on the IEO level provide ambiguous results. Some of them indicate that it may have a significant positive impact in this respect [63–65], while others suggest that it has only a little positive effect on entrepreneurial intentions [59] or even that the impact may be negative [66].

To a large extent, the relationship between EE and IEO is shaped by the age of participants, cultural environment, EE objectives and methods used [67]. The perspective of the previously diagnosed intergenerational differences in IEO allows us to expect that the impact of EE will vary between generations, although this has not been the subject of longitudinal scientific research so far. First of all, representatives of particular generations currently take part in various forms of education; their participation in the education process is intended to achieve different goals, and they also have different preferences regarding the methods of education. Therefore, the use of a unified approach seems inappropriate and ineffective. Nevertheless, such an attitude is still frequently taken; H. Maltay [68], H. van Auken et al. [69], Hussain et al. [70] and C.A. Pardo [71] write on this topic, among others.

The representatives of the baby boomer generation who participate in EE usually decide to attend short-term courses or trainings. The aim is to prepare to start a company and/or to acquire practical skills necessary to run it in current socio-economic conditions. It is a generation that prefers traditional forms of lectures and close contact with the teacher in the process of education. It also finds workshop classes and group discussion attractive [31,72].

Representatives of Generation X—like baby boomers—participate in EE in order to supplement the necessary knowledge and acquire specific entrepreneurial skills. Nevertheless, D.E. Collins and E.R. Tilson [73] proved that “Generation X students like to perform tasks independently and prefer a variety of teaching methods such as self-directed activities, on-line courses, and activities with visual aids”. Due to the need for independence and the presence of high workload, they also willingly use distance learning [72].

Generations Y and Z expect an approach different than in the case of older generations throughout the whole education process, including EE. They are characterized by low patience, high creativity, ability to use modern technologies and ease of finding information. Therefore, effective EE with regard to the representatives of Generations Y and Z requires, among others:

- ensuring access to content on a continuous basis (7 days a week, 24 h a day.) (this includes the possibility of contact with the teacher) since they have a preference for learning in their own time and also on their own terms [38];
- implementation of classes (regardless of their form and organization) with the use of the latest technologies, tools that are well-known and easy to use;
- bi-directionality in knowledge transfer; this generation is not interested in formalised lectures, without the possibility of asking questions or participating in discussions, or without the right to constructive criticism and feedback [72,74,75]. There is a “shortening” of the relationship between the teacher and the learner (from “teaching” to “coaching”/“mentoring”), which does not mean disregarding the authority of the knowledge holder (teacher); “standardized, content focused, passive and single-subject based curriculum in traditional education is contrasted with an individualized, active, process-based, project centric, collaborative, experiential and multidisciplinary approach in entrepreneurial education” [76];
- use of activating and attention-focusing didactic methods and tools; their selection should take into account that the representatives of Generations Y and Z are accustomed to several-second formats appearing in social media, short text messages and competition based on an imaginary plot (gamification).

EE in the case of Generations Y and Z should therefore adopt not so much the “about” or “for” entrepreneurship formula (division proposed by C. Mason and N. Arshed [58]), but teaching “through” entrepreneurship [77,78]. Such formula should be focused on creating—as a result of the entire educational process—entrepreneurial mindsets, building a self-identity and self-concept around an entrepreneurial life [67].

The results of a literature analysis and research aimed at diagnosing IEO conducted among Polish students by the authors confirm that representatives of Generation Y and Z exhibit high levels of pro-activeness, low levels of innovation and the lowest levels of readiness to take risks. Thus, it is important to select appropriate content and teaching methods, alongside the above-mentioned recommendations that fill the gap in the EE process, particularly in risk-taking.

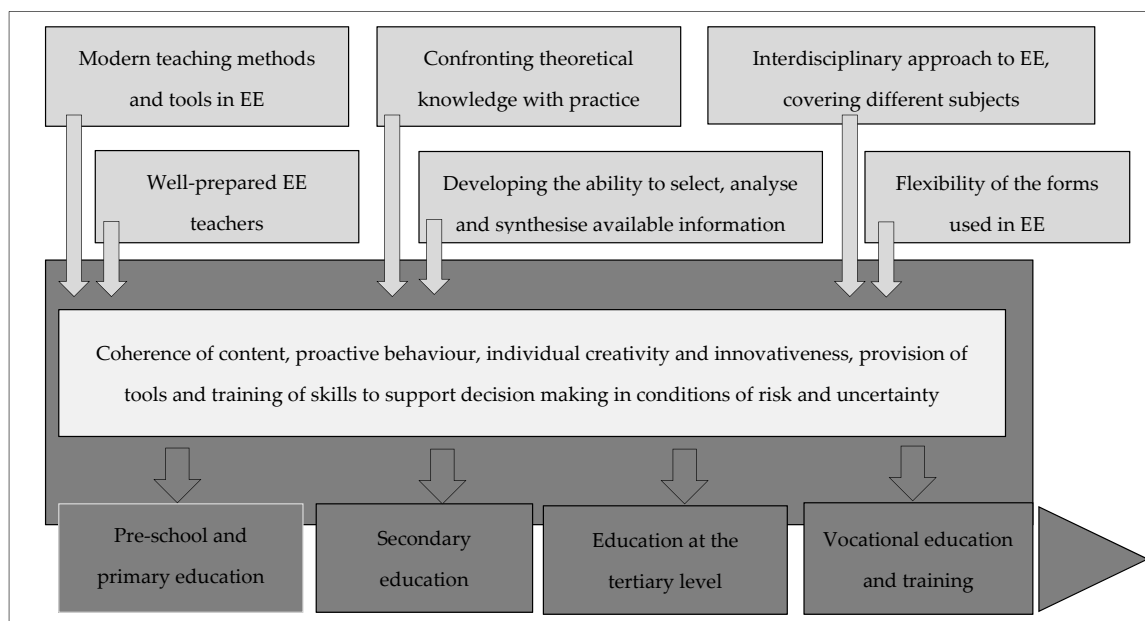
Three approaches can be used in the educational process to increase the individual’s readiness to take risks. First, providing knowledge and tools enabling risk reduction in the decision-making process (statistical and forecasting methods and tools). According to Knight [79], risk is measurable and preventable. The better the diagnostic (statistical) tool that young people use, the more courage they will have to make decisions (with a higher chance of success). Knight’s theory also mentions uncertainty events; their consequences and therefore the decisions that flow from them are unforeseeable. In these cases, Bayesian statistics and statistic decision analysis can be used to increase safety and sureness of decisions.

Second, the application of transgressive education [80]. It allows for shaping a “transgressive offender”, that is, people whose motivational forces, knowledge and skills acquired at school or university allow them “to exceed the limits of their own achievements. And to independently carry out creative, innovative and expansive transgressions in technology, science, administration and politics.



Thanks to this, they gain recognition and confirms self-esteem” ([81], p. 264). Among the teaching methods used in this approach, one can distinguish, *inter alia*, simulations, solving divergence and convergence problems, creativity training or interpersonal games (gamification of educational tasks). It is also important that the participants of the educational process can experience failures and deal with their consequences [82].

Third, taming risk using symbolic cognitive science achievements by pointing to the examples of entrepreneurs who, despite their failures, achieved success. According to this concept, the perception of risk (not the risk itself) depends, *inter alia*, on previous experiences, trust in the source of information and expected benefits. Such familiarization with failure experienced by others allows us to understand that entrepreneurial activity is always associated with risk. It is also worth pointing out that failure in business does not mean personal failure. Among the didactic methods that can be used in this area, one can distinguish presentations of good practices (the successes related to the actions under risk), and presentations of practices that ended in failures, but which became an inspiration to look for new, better solutions; and identifying and testing tools that reduce the uncertainty of decisions made. Due to the specificity of Generations Y and Z—currently the most active in terms of education—EE faces new challenges. They mainly concern the content, organisation of the EE process and the teaching methods and tools used in EE (see Figure 1).



**Figure 1.** The organisation of the entrepreneurship education (EE) process and the teaching methods and tools used in EE. Source: Own elaboration.

EE—from a process perspective—requires the integration of different phases and elements of the process (ensuring they are complementary with each other). EE should not be limited only to dedicated education at a selected level of education, and even more so to selected subjects. The teaching methods and tools used in EE must be adapted to the educational needs of Generations Y and Z. The ease with which the representatives of these generations can access information and the ease of using modern technologies imply new tasks and roles for EE teachers. On the one hand, they must engage—more than ever before—in self-improvement as regards content and methodology, and on the other hand, they must reconstruct their perception of their role (from providing information to supporting the selection, analysis, understanding and effective use of this information).

## 6. Discussion and Conclusions

The research on IEO does not have a long tradition and the concept itself takes over a number of shortcomings of the original idea (i.e., the EO). The main allegation made against EO (and IEO) is that the studies are based on subjective assessment of respondents. Therefore, there are further methodological proposals necessary; for example, Ferreira et al. [83] proposed the use of a metacognitive decision making-based framework. One can also refer to psychological tests, especially in the area of risk-taking. This type of research is certainly more faithful to reality, but its basic disadvantage is the fact it is time-consuming and covers a small number of respondents. Conducting a simple test made up of a few questions does not take up a lot of time, but helps teachers to emphasize aspects of education that may be lacking.

However, if one looks at the IEO components, it appears that attention should be paid to the questions asked in each of the dimensions. Those proposed in the literature relate to a period of almost 10 years ago (including the Bolton and Lane [4] studies). At present, Generation Z is entering the period of university education, and a set of questions should be prepared based on its characteristics. On the other hand, however, the question arises whether sociologists are really right to generalize the descriptions of different generations. The cultural context within different countries or regions in which research is conducted should also be taken into account, which is also postulated in literature, both on an EO and IEO level [5]. Research demonstrates that some cultures in particular value certain attitudes, such as energy, effectuation or bricolage [84], which could influence the attitudes of young people. When research was conducted in Poland, the questions were adapted to a context matching the reality of the Polish respondents, in a way that was clearer for them.

If we assume that IEO does influence the formation of an entrepreneurial intentions (studies conducted, although few, have confirmed this to be the case), then it is worth paying attention to the three components of IEO used in the education of potential entrepreneurs. Such education needs to be relevant to each tier of teaching. Such an approach should be adopted preferably from an early age and adapted to the relevant age of pupils/students. Classes do not necessarily need to be called “entrepreneurship lessons”, as the dimensions of IEO are spread over numerous functionality modes and areas, and manifest themselves independently of entrepreneurship as such. Shaping entrepreneurial attitudes and behaviours does not necessarily lead to the establishment of a business. Such a step might be delayed or possibly even never made. Nevertheless, entrepreneurial attitudes are conducive to economic development. An “entrepreneurial” official will look for the best solution without worrying about venturing into uncharted waters. An “entrepreneurial” teacher will look for innovative methods to meet the needs of students. An “entrepreneurial” engineer or salesperson will act in an entrepreneurial way within the organization in which they are employed (i.e., they will be intrapreneurs). The latter is, moreover, an ideal solution for people who are proactive and innovative, but not willing to take risks. It would also be worthwhile to introduce appropriate content into education programs that would help forecast risk as described above.

Introducing a short test measuring IEO levels in students can help identify shortcomings in IEO and later aid relevant education processes. Gender, age, previous educational experience and personal interests of interviewees are all factors that can influence IEO levels.

It is therefore worth implementing guidelines for entrepreneurship education, regardless of whether we want to educate entrepreneurs or future, valuable members of society. IEO will prove useful in both cases.

**Author Contributions:** Conceptualization, J.E.W. and A.R.-K.; methodology, J.E.W.; formal analysis, J.E.W. and A.R.-K.; investigation, J.E.W. and A.R.-K.; resources, J.E.W. and A.R.-K.; data curation, J.E.W.; writing—original draft preparation, J.E.W. and A.R.-K.; writing—review and editing, J.E.W. and A.R.-K.; visualization, J.E.W. and A.R.-K. All authors have read and agreed to the published version of the manuscript. Please turn to the CRediT taxonomy for the term explanation. Authorship must be limited to those who have contributed substantially to the work reported.

**Funding:** This research received no external funding.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

1. Esfandiari, K.; Sharifi-Tehrani, M.; Pratt, S.; Altinay, L. Understanding entrepreneurial intentions: A developed integrated structural model approach. *J. Bus. Res.* **2019**, *94*, 172–182. [\[CrossRef\]](#)
2. Miller, D. The correlates of entrepreneurship in three types of firms. *Manag. Sci.* **1983**, *29*, 770–791. [\[CrossRef\]](#)
3. Covin, J.G.; Slevin, D.P. A Conceptual Model of Entrepreneurship as Firm Behavior. *Entrep. Theory Pract.* **1991**, *16*, 7–25. [\[CrossRef\]](#)
4. Bolton, D.L.; Lane, M.D. Individual entrepreneurial orientation: Development of a measurement instrument. *Educ. Train.* **2012**, *54*, 219–233. [\[CrossRef\]](#)
5. Robinson, S.; Stubberud, H.A. Elements of entrepreneurial orientation and their relationship to entrepreneurial intent. *J. Entrep. Educ.* **2014**, *17*, 1–11.
6. Koe, W.L. The relationship between Individual Entrepreneurial Orientation (IEO) and entrepreneurial intention. *J. Glob. Entrep. Res.* **2016**, *6*, 13. [\[CrossRef\]](#)
7. Stambaugh, J.E.; Martinez, J.; Lumpkin, G.T.; Kataria, N. How well do EO measures and entrepreneurial behaviour match? *Int. Entrep. Manag. J.* **2017**, *13*, 717–737. [\[CrossRef\]](#)
8. Al-Awlaqi, M.A.; Aamer, A.M.; Habtoor, N. The effect of entrepreneurship training on entrepreneurial orientation: Evidence from a regression discontinuity design on micro-sized businesses. *Int. J. Manag. Educ.* **2018**. [\[CrossRef\]](#)
9. Lumpkin, G.T.; Dess, G.G. Clarifying the entrepreneurial orientation construct and linking it to performance. *Acad. Manag. Rev.* **1996**, *21*, 135–172. [\[CrossRef\]](#)
10. Fernández-Alles, M.; Ramos-Rodríguez, A. Intellectual structure of human resources management research: A bibliometric analysis of the journal Human Resource Management, 1985–2005. *J. Am. Soc. Inf. Sci. Technol.* **2009**, *60*, 161–175. [\[CrossRef\]](#)
11. Naldi, L.; Nordqvist, M.; Sjöberg, K.; Wiklund, J. Entrepreneurial orientation, risk taking, and performance in family firms. *Fam. Bus. Rev.* **2007**, *20*, 33–47. [\[CrossRef\]](#)
12. Arzubaga, U.; Kotlar, J.; De Massis, A.; Maseda, A.; Iturralde, T. Entrepreneurial orientation and innovation in family SMEs: Unveiling the (actual) impact of the Board of Directors. *J. Bus. Ventur.* **2018**, *33*, 455–469. [\[CrossRef\]](#)
13. Charvet, F.; Cooper, M.; Gardner, J. The Intellectual Structure of Supply Chain Management: A Bibliometric Approach. *J. Bus. Logist.* **2008**, *29*. [\[CrossRef\]](#)
14. Karmann, T.; Mauer, R.; Flatten, T.C.; Brettel, M. Entrepreneurial Orientation and Corruption. *J. Bus. Ethics* **2016**, *133*, 223–234. [\[CrossRef\]](#)
15. Andrade-Valbuena, N.A.; Merigo-Lindahl, J.M.; Olavarrieta, S. Bibliometric analysis of entrepreneurial orientation. *World J. Entrep. Manag. Sustain. Dev.* **2018**, *15*, 45–69. [\[CrossRef\]](#)
16. Gartner, W.B. “Who is an Entrepreneur?” Is the Wrong Question. *Entrep. Theory Pract.* **1989**, 47–67. [\[CrossRef\]](#)
17. Ajzen, I. The Theory of Planned Behavior. *Organ. Behav. Hum. Decis. Process.* **1991**, *50*, 179–211. [\[CrossRef\]](#)
18. Shapero, A.; Sokol, L. The social dimension of entrepreneurship. In *Encyclopedia of Entrepreneurship*; Kent, C.A., Sexton, D.L., Vesper, K.H., Eds.; Prentice-Hall: Englewood Cliffs, NJ, USA, 1982; pp. 72–90.
19. Rauch, A.; Wiklund, J.; Lumpkin, G.T.; Frese, M. Orientation and business performance: An assessment of past research and suggestions for the future. *Entrep. Theory Pract.* **2009**, *33*, 761–787. [\[CrossRef\]](#)
20. Eshima, Y. Firm Growth, Adaptive Capability, and Entrepreneurial Orientation. *Strateg. Manag. J.* **2016**, *38*, 770–779. [\[CrossRef\]](#)
21. Bolton, L. Individual Entrepreneurial Orientation: Further Investigation of a Measurement Instrument. *Acad. Entrep. J.* **2012**, *18*, 91–99. [\[CrossRef\]](#)
22. Kurniawan, J.E.; Setiawan, J.L.; Sanjaya, E.L.; Wardhani, F.P.I.; Virilia, S.; Dewi, K.; Kasim, A. Developing a measurement instrument for high school students’ entrepreneurial orientation. *Cogent Educ.* **2019**, *6*, 1564423. [\[CrossRef\]](#)
23. Rosenberg, M.J.; Hovland, C.J. Cognitive, Affective and Behavioral Components of Attitudes. In *Attitude Organization and Change*; Rosenberg, M.J., Hovland, C.I., McGuire, W.J., Abelson, R.P., Brehm, J.W., Eds.; Yale University Press: New Haven, CT, USA, 1960.
24. Olesiak, H. *Postawy Społeczne Studentów [Students’ Social Attitudes]*. Towarzystwo Krzewienie Kultury Świeckiej; Zarząd Wojewódzki w Katowicach: Katowice, Poland, 1973.

25. Oblinger, D.; Oblinger, J. Is It Age or IT: First Steps towards Understanding the Netgeneration. In *Educating the Net Generation*; Oblinger, D., Oblinger, J., Eds.; EDUCAUSE: Boulder, CO, USA, 2005.
26. Reeves, T.C.; Oh, E. Generational Differences. In *Handbook of Research on Educational Communications and Technology*; Routledge: Abingdon-on-Thames, UK, 2007; pp. 295–303. [CrossRef]
27. Pirie, M.; Worcester, R. *The Millennial Generation*; Adam Smith Institute: London, UK, 1998.
28. Jacobs, E.; Worcester, R. *We British. Britain under the MORIScope*; Weidenfeld and Nicholson: London, UK, 1990.
29. Generational Differences, West Midland Family Center, Electronic Document. Available online: <http://www.wmfc.org/uploads/GenerationalDifferencesChart.pdf> (accessed on 10 March 2016).
30. Kupperschmidt, B. Multigeneration Employees: Strategies for Effective Management. *Health Care Manag.* **2000**, *19*, 65–76. [CrossRef] [PubMed]
31. Coates, J. *Generational Learning Styles*; LERN Books: River Falls, WI, USA, 2007.
32. Weston, M. Coaching generations in the workplace. *Nurs. Adm. Q.* **2001**, *25*, 11–21. [CrossRef] [PubMed]
33. Walker, J.T.; Martin, T.; White, J.; Elliott, R.; Norwood, A.; Mangum, C.; Haynie, L. Generational (age) differences in nursing students' preferences for teaching methods. *J. Nurs. Educ.* **2006**, *45*, 371–374. [CrossRef]
34. Tapscott, D. *Grown Up Digital. How The Net Generation Is Changing Your World*; McGraw-Hill: New York, NY, USA, 2009.
35. Fletcher, F.; Roberts, C.; Gibson, C.; Gibson, D.; Cooke, D.R.; Eldridge, L.; Hoffman, W.; Mundy, R. Generational Cohorts and Their Attitudes Toward Work Related Issues in Central Kentucky. *Soc. Sci. Res. Netw.* **2009**. [CrossRef]
36. Solomon, M.R. *Conquering Consumerspace: Marketing Strategies for Branded World*; Ama-com: New York, NY, USA, 2003.
37. Simons, N. Leveraging Generational Work Styles to Meet Business Objectives. *Inf. Manag.* **2010**, *44*, 28–33.
38. McGlynn, A.P. Teaching millennials, our newest cultural cohort. *Hisp. Outlook High. Educ.* **2005**, *16*, 19–20.
39. Sherman, R.O. Leading a multigenerational nursing workforce: Issues, challenges and strategies. *Online J. Issues Nurs.* **2006**, *11*. [CrossRef]
40. Prensky, M. Digital Natives, Digital Immigrants. *Horizon* **2001**, *9*, 1–6.
41. Csobanka, Z.E. The Z Generation. *Acta Technol. Dubnicae* **2016**, *6*, 63–76. [CrossRef]
42. Hardey, M. Generation C: Content, Creation, Connections and Choice. *International J. Mark. Res.* **2011**, *53*, 749–770. [CrossRef]
43. Gaidhani, S.; Arora, L.; Sharma, B.K. Understanding the attitude of generation z towards workplace. *Int. J. Manag. Technol. Eng.* **2019**, *9*, 2804–2812.
44. Bencsik, A.; Horváth-Csik, G.; Juhász, T. Y and Z generations at workplaces. *J. Compet.* **2012**, *8*, 90–106. [CrossRef]
45. Fisher, C.D.; Yuan, X.Y. What Motivates Employees? A Comparison of US and Chinese Responses. *Int. J. Hum. Resour. Manag.* **1998**, *9*, 516–528. [CrossRef]
46. Ringer, A.; Garma, R. Does the Motivation to Help Differ Between Generation X and Y? In Proceedings of the Australian and New Zealand Marketing Academy Conference, Otago, New Zealand, 3–5 December 2006; pp. 1067–1073.
47. Leahy, K.; McGinley, J.; Thompson, J.; Weese, T. Intelligence Community Assessment: Generational Difference in Workplace Motivation. *Intell. Reform Transform.* **2011**, *29*, 80–87.
48. Lu, A.C.C.; Gursoy, D. Impact of Job Burnout on Satisfaction and Turnover Intention: Do Generational Differences Matter? *J. Hosp. Tour. Res.* **2016**, *40*, 210–235. [CrossRef]
49. Huntley, R. *The Word According to Y: Inside the New Adult Generation*; Allen & Unwin: Crows Nest, Australia, 2007.
50. Ensari, M.S. A Study on the Differences of Entrepreneurship Potential Among Generations. *Res. J. Bus. Manag.* **2017**, *4*, 52–62. [CrossRef]
51. Merriman, M. *What if the Next Big Disruptor Isn't a What but a Who? Gen z is Connected, Informed and Ready for Business*; Ernst & Young LLP: London, UK, 2015.
52. Wach, K.; Wojciechowski, L. Entrepreneurial Intentions of Students in Poland in the View of Ajzen's Theory of Planned Behaviour. *Entrep. Bus. Econ. Rev.* **2016**, *4*, 83–94. [CrossRef]
53. Rachwał, T.; Wach, K. Badanie intencji przedsiębiorczych młodego pokolenia: Wyniki ankietyzacji wśród studentów kierunków nieekonomicznych [Research on entrepreneurial intentions of the young generation: Results of a survey among students of non-economic faculties]. *Przedsiębiorczość Eduk.* **2016**, *12*, 405–415.

54. Hindle, K. Teaching entrepreneurship at university: From the wrong building to the right philosophy. In *The Handbook of Research in Entrepreneurship Education*; Fayolle, A., Ed.; Edward Elgar Publishing: Cheltenham, UK; Northampton, MA, USA, 2007; pp. 104–126.
55. Morris, M.; Kuratko, D.; Cornwall, R. *Entrepreneurship Programs and the Modern University*; Edward Elgar: Cheltenham, UK; Northampton, MA, USA, 2013.
56. Fayolle, A. Personal views on the future of entrepreneurship education. *Entrep. Reg. Dev.* **2013**, *25*, 692–701. [[CrossRef](#)]
57. Fiet, J.O. The theoretical side of teaching entrepreneurship. *J. Bus. Ventur.* **2001**, *16*, 1–24. [[CrossRef](#)]
58. Mason, C.; Arshed, N. Teaching entrepreneurship to university students through experiential learning. *Ind. High. Educ.* **2013**, *27*, 449–463. [[CrossRef](#)]
59. Bae, T.J.; Qian, S.; Miao, C.; Fiet, J.O. The relationship between entrepreneurship education and entrepreneurial intentions: A meta-analytic review. *Entrep. Theory Pract.* **2014**, *38*, 217–254. [[CrossRef](#)]
60. Lorz, M.; Mueller, S.; Volery, T. Entrepreneurship education: A systematic review of the methods in impact studies. *J. Enterprising Cult.* **2013**, *21*, 123–151. [[CrossRef](#)]
61. Welsh, D.H.B. *Cross-Disciplinary Entrepreneurship: A Practical Guide for A Campus-Wide Program*; Palgrave MacMillan: New York, NY, USA, 2014.
62. Alborno, C.A. Toward a set of trainable content on entrepreneurship education: A review of entrepreneurship research from an educational perspective. *J. Technol. Manag. Innov.* **2008**, *3*, 86–98.
63. Athayde, R. Measuring Enterprise Potential in Young People. *Entrep. Theory Pract.* **2009**, *33*, 481–500. [[CrossRef](#)]
64. Davidsson, P.; Honig, B. The Role of Social and Human Capital among Nascent Entrepreneurs. *J. Bus. Ventur.* **2003**, *18*, 301–331. [[CrossRef](#)]
65. Galloway, L.; Brown, W. Entrepreneurship Education at University: A Driver in the Creation of High Growth Firms. *Educ. Train.* **2002**, *44*, 398–405. [[CrossRef](#)]
66. Von Graevenitz, G.; Harhoff, D.; Weber, R. The Effects of Entrepreneurship Education. *J. Econ. Behav. Organ.* **2010**, *76*, 90–112. [[CrossRef](#)]
67. Welsh, D.H.B.; Tullar, W.L.; Nemati, H. Entrepreneurship education: Process, method or both? *J. Innov. Knowl.* **2016**, *1*, 125–132. [[CrossRef](#)]
68. Matlay, H. Researching entrepreneurship and education. *Educ. Train.* **2006**, *48*, 704–718. [[CrossRef](#)]
69. Van Auken, H.; Fry, F.L.; Stephens, P. The influence of role models on entrepreneurial intentions. *J. Dev. Entrep.* **2006**, *11*, 157–167. [[CrossRef](#)]
70. Hussain, J.G.; Scott, J.M.; Matlay, H. The impact of entrepreneurship education on succession in ethnic minority family firms. *Educ. Train.* **2010**, *52*, 643–659. [[CrossRef](#)]
71. Pardo, C.A. Is business creation the mean or the end of entrepreneurship education? A multiple case study exploring teaching goals in entrepreneurship education. *J. Technol. Manag. Innov.* **2013**, *8*, 1–10. [[CrossRef](#)]
72. Johnson, S.A.; Romanello, M.L. Generational diversity: Teaching and learning approaches. *Nurse Educ.* **2005**, *30*, 212–216. [[CrossRef](#)]
73. Collins, D.E.; Tilson, E.R. Profiling the generation X learner. *Radiol. Technol.* **2000**, *73*, 581–584.
74. Arhin, A.O.; Johnson-Mallard, V. Encouraging alternative forms of self-expression in the Generation Y student: A strategy for effective learning in the classroom. *ABNF J.* **2003**, *14*, 121–122.
75. Skiba, D.J. The millennials: Have they arrived at your school of nursing? *Nurs. Educ. Perspect.* **2005**, *25*, 370–371.
76. Lackeus, M. *Entrepreneurship in Education, What, Why, When, How*; OECD: Paris, France, 2015.
77. Smith, A.J.; Collins, L.A.; Hannon, P.D. Embedding new entrepreneurship programs in UK higher education institutions: Challenges and considerations. *Educ. Train.* **2006**, *48*, 555–567. [[CrossRef](#)]
78. Handscombe, R.D.; Rodriguez-Falcon, E.; Patterson, E.A. Embedding enterprise in science and engineering departments. *Educ. Train.* **2008**, *50*, 615–625. [[CrossRef](#)]
79. Knight, F.H. *Risk, Uncertainty and Profit*; University of Boston Press: Boston, MA, USA, 1921.
80. Pieronkiewicz, B. Koncepcja kształcenia transgresyjnego jako odpowiedź na specjalne potrzeby edukacyjne współczesnej młodzieży [The concept of transgressive education as a response to the special educational needs of young generation]. *Podstawy Edukac.* **2014**, *7*, 167–184.
81. Kozielecki, J. *Psychotransgresjonizm. Nowy Kierunek w Psychologii [Psychotransgressionism. A new Trend in Psychology]*; Wydawnictwo Akademickie Żak: Warszawa, Poland, 2001.
82. Edmonds, A.C. Strategies for Learning from Failure. *Harv. Bus. Rev.* **2011**, *89*, 48–55.



83. Ferreira, F.A.; Jalali, M.S.; Bento, P.; Marques, C.S.; Ferreira, J.J. Enhancing individual entrepreneurial orientation measurement using a metacognitive decision making-based framework. *Int. Entrep. Manag. J.* **2017**, *13*, 327–346. [[CrossRef](#)]
84. Randerson, K. Entrepreneurial Orientation: Do we actually know as much as we think we do? *Entrep. Reg. Dev.* **2016**, *28*, 580–600. [[CrossRef](#)]

**Publisher’s Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



© 2020 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).