

Formal learning versus empirical learning: which one yields better results?

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Abstract. *The digital revolution that we are currently experiencing is causing a lot of young people to ask themselves if formal education is still worth it. As the digital environment exponentially evolved in the last couple of years, you can now find almost any curriculum on the internet for a fraction of the price you would pay to study it in a university, or sometimes even free or charge. Furthermore, employers all over the globe are starting to put more emphasis on the experience accumulated by the individual rather than its formal studies, encouraging young people to start working early in their lives. The present paper approached this hypothesis from two different angles: the first part of the paper was focused on individuals in their early “work-life”, more precisely millennials that graduated recently, while the second part of the paper looked at the wealthiest people on the planet, the ones indicated by Forbes Top 30. Insights about how millennials with higher education see work in relation with their formal studies were obtained using a questionnaire, their overall feedback being a positive one, against all previous expectations. Also, interesting patterns emerged from the data about the Forbes Top 30 billionaires after researching their educational backgrounds. As it turns out, financial success is not necessarily correlated with formal studies, but links between high performance / innovative individuals and previous formal studies have been found.*

Keywords: formal learning, empirical learning, millennials, Forbes, learn-by-doing, knowledge assimilation.

Introduction

Ever since ancient times, when people started to create schools and universities, participating in an organized type of studying helped our civilization to move forward, this being the base for numerous generations of inventors, engineers and humanists. In these latter days however, technology allows for massive access to information regardless of one’s physical location or financial resources. This new paradigm might make a student wonder, legitimately, if participating in a type of formal education is the best choice that he or she could make in order to earn a living and live a happy life. Moreover, sometimes it can be difficult for an individual to accumulate social abilities, empathy, and interpersonal skills in a formal environment. These kind of skills are very important especially for the future managers, numerous studies concluding that managers that were considered kind and sympathetic, with good communication skills and who showed empathy for their peers have the best results when it comes to organizational work engagement and overall job efficiency (Dincă, 2021).

Therefore, considering the perspectives presented above, the current paper pursues the concept of *empirical learning versus theoretical learning*, looking to research this subject at both ends of the human financial scale (people that are just starting to earn a living and the richest individuals on the planet). For the first part of the study, a short questionnaire was created and shared among millennials with higher studies, these individuals currently beginning their careers. This is a very interesting group to research, as millennials are considered the first “digital” generation, living most of their life inside the *digital revolution* that is currently taking place.

The second part of the study was focused on the other tip of the scale, precisely on the top 30 most wealthy individuals on the planet. We tried to identify a correlation between formal studies, activity field and wealth, managing to identify an interesting pattern among them. All in one, some interesting results were distilled from the researched data and information, results that can be confronted in the paper below.

Literature review

Nowadays, as the amount of information and knowledge found in the online environment is skyrocketing, many people start to question themselves what is the best way to acquire new knowledge. Given the pandemic situation we had for the last two years, many of the courses and physical classes moved in the online environment, “forcing” people to participate in what is called “Self-regulated learning” or SRL. This type of learning is being used by all of us, more or less, some researchers managing to find even some correlations between SRL and the future academic performance of individuals (Viberg et al., 2020). There are multiple ways to gather knowledge out there: rote learning (this is one of the most popular ways to learn in school – basically learning by trying to memorize), collaborative learning (this is usually used with small children in kindergarten – the main idea is to learn by socialization), observation learning (used mostly by infants in the first years of life), reflective learning (works by reflecting on past actions and trying to extract meaningful knowledge out of it), experiential learning (obtaining learning from real-life experiences) and many other ways (Misra, 2021).

If we take a step back and distil learning into its basic characteristics, we can observe that there are two main approaches to learning: a theoretical approach and an empirical approach (also known as learn-by-doing). Some may even argue that the only way to assimilate true knowledge is by doing that certain activity, offering even compelling examples that support their claim. For instance, a chess player does not use his brain in a conscious way to recall the rules of the game while playing, he makes the moves thinking mostly about the strategy. The rules of the game are embedded into his brain and he does not have to theorize them anymore, they are somehow embedded in the action of playing. Similarly, one can read 10 books about how to swim, but until he actually enters the water and starts swimming, no actual knowledge on swimming is possessed. The other way around is possible however, one can swim in an unconscious manner while having zero theoretical knowledge about swimming and without thinking at the process of swimming (Entwistle, 1969). An important aspect of learning by doing is the fact that it requires the attention and the genuine interest of the individual, otherwise the action itself will not produce any new knowledge. One of the best ways to overcome this issue is by using “gamified learning”. This kind of learning works great for individuals of various ages and backgrounds, numerous studies indicating the fact that it yields positive results, most of the time (Majuri et al., 2018).

A complementarity between professional experience and formal education exists without a doubt, but numerous hypothesis in the scientific environment claim that there is a certain threshold level above which professional experience and formal education “join forces” in order to become useful for the individual. Some studies even showcased the need for sustainable education to be integrated into the current learning process in a more prevalent manner, the main scope being to increase trans-disciplinary learning and collaboration (Dima, 2018). Recent studies have shown that the probability of success for an entrepreneur increases with the number formal studies undertaken, but only when the fields in which he possess professional experience is equal or larger than two. Symmetrically equal, the rate of success for an entrepreneur increases

proportionally with the amount of professional experience, but only if the individual undertook at least one field of studies (the success of an entrepreneur is defined, in that particular study, by sustaining business activity three or more consecutive years). To summarize all this information in a concise manner, from a business perspective, the probability of one's success increases as his professional experience accumulates, assuming that the individual has at least one field of study undertaken (Kurczewska et al., 2020).

Methodology

In order to obtain enough valuable data for the present paper and have a good overview about the researched topic, both quantitative and qualitative research methods were used. The first step was to develop a questionnaire that would provide us with insights about what formal studies did individuals managed to graduate, what is their current field of activity and also what is their take on the usefulness of studies in their current day-to-day activities. Given the fact that for the last two years we experienced a pandemic crisis that forced many activities to operate mainly in the online environment, a lot of attention has been redirected to online ads and online activity, thus creating an overwhelming amount of spam and online ads targeting. Because of this, the questionnaire was designed with only seven questions in mind, such that the respondents would not be forced to spend a lot of time completing it, thus being more willing to participate in the study. The questionnaire was created using Google Forms and distributed with the help of several social media platforms: WhatsApp, Facebook and Telegram. Over 50 answers were recorded and analyzed for this paper, most of the data analysis and graphs being created using Microsoft Excel.

The raw data for the second part of this paper was first extracted from “*Forbes – The World's Real-Time Billionaires (29 January 2022)*” and then refined by researching each of the top 30 individuals background and correlating all the information. Again, Microsoft Excel was used to aggregate all the data and generate the graphs presented below. Although the number of individuals that answered the questionnaire is not large enough to firmly affirm that the current study is statistically significant (51 individuals answered), almost all respondents are millennials with higher studies (bachelor degree or higher), thus making the present study relevant for this particular niche. Millennials, unlike previous generations, have an *work to live* rather than *live to work* job approach. This makes an important percentage of them “flock” towards more liberal lifestyles, ones that allow them to follow their travel interests while working and also permitting them to have a creative workstyle (Wood, 2019). This type of thinking can generate inside millennials the thought that maybe school is not the best approach to learning new skills and gaining knowledge, as empirical learning may be more effective. This is also the scope of the paper, to identify whether learning-by-doing can be as efficient as the widely-used theoretical learning and also which one do people actually prefer. There are many factors to be taken into consideration, starting with the pandemic situation that limited physical interactions and reduced learn-by-doing possibilities, up to the fact that there are many jobs out there that require a lot of theory and would be impossible to perform otherwise.

Results and discussions

In order to obtain new insights about the main hypothesis of this paper, a short questionnaire that assessed career choices as well as the formal studies undertaken by individuals was created. Given the current pandemic conditions in which individuals are flooded with information in the online environment and also spammed with ads, the questionnaire was composed of just 7 research questions (two multiple choice question, three dichotomous questions and two open

ended questions), such that the people would not be deterred and the number of answers obtained would be maximized (Rowley, 2014). Almost all of the research subjects that answered the questionnaire had at least a bachelor degree (with just one exception), over 45% of them also having a master degree and more than 31% of them being currently enrolled in doctoral studies. Also, the respondents were between the ages of 22 and 40 years old, so the entire sampled group was composed of *millennials*. The number of individuals participating in this study was just over 50 persons, thus the study having its limitations. Nevertheless, considering the fact that more than 76% of the respondents were millennials with higher education studies, the research can still be used to extract meaningful information about that particular group. The first question asked was “*What is your current academic level?*”, with the purpose of obtaining the information presented above, more precisely to have the exact data about the formal education studies that each individual graduated or is enrolled in at the current moment.

The second question of the study “*What is the main field of your studies?*” aimed to identify the main study areas that the respondents were trained in. After processing all the data, seven fields of study were distilled out of the answers: Engineering/IT, Economic, Management, Humanist, Medical, Business Administration and Communication. Out of the seven, Engineering/IT and Economic add up to 60% of the total responses, making it clear that for the study group these two are the most popular study choices.

The third question “*In what industry do you work at the present moment?*” aimed to identify which are the most popular industries among the study group. It was no surprise to find out that almost half of all the respondents (45% more precisely) work in engineering/IT now, as this is the industry that has the highest demand for workforce right now. Again, the results placed the economic sector on the second place, with 15% of the respondents working in economic related jobs at the current moment. Many studies point out that the engineering/IT industry is “hungry” for millennial workforce as, among the workforce, they have some of the best aptitudes for understanding and using the latest software/programming languages. Millennials are very proficient when it comes to technical skills, but they lack however in the long-term career perspectives. They usually require a career road map and a mentor in order to develop progress, as they are not patient enough to see the results and are constantly looking for evolution. This mainly comes from the fact that they are prioritizing analytical and data skills (due to the rapid technological changes that we faced in the last years) rather than developing their interpersonal skills together with their empathetic skills. Although this is a very useful adaptation to the current environment, it is not beneficial for them and for the society in the long run, as for the senior jobs it is not enough to have technical skills, but rather good social and interpersonal skills (Chopra & Bhilare, 2020).

As we can see in the Figure 1 bellow, the ratio between the engineering/IT + economic sector and the other sectors remained constant, representing 60% of the chosen industries (both studied and industries that the respondents are currently working in). While the engineering/IT sector managed to “lure in” people from diverse studying fields (mostly from economic studies), the data also reveals that jobs requiring a lot of human interaction are in high demand and some individuals choose them after graduation (jobs like Consulting, Sales, HR etc.). The medical and the communication sector are some of the most “stable” in terms of work after graduation, with most of the individuals that studied the two choosing to follow a career in a related field.

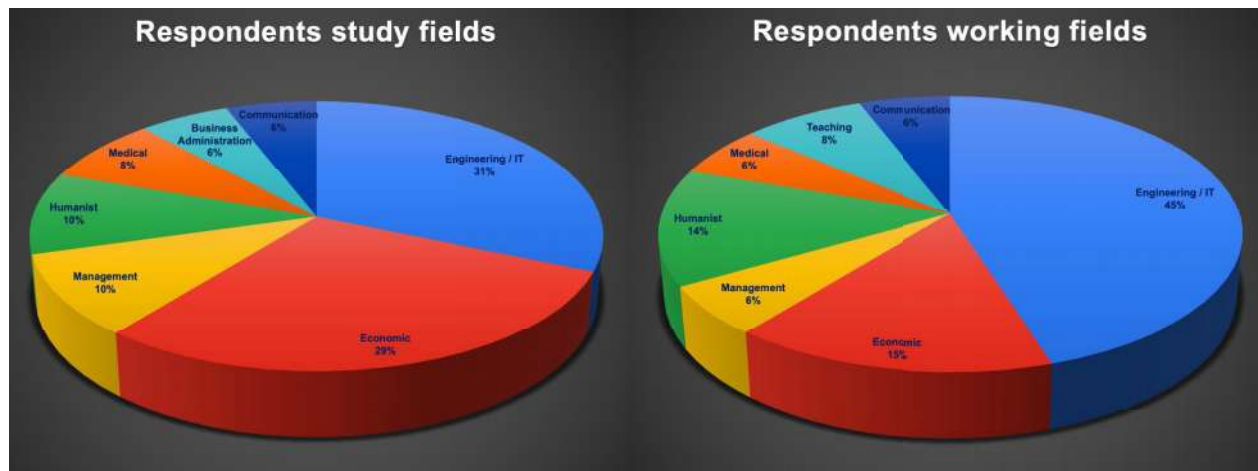


Figure 1. Respondents study fields and working fields

Source: Authors' own research.

The fourth and fifth question of the questionnaire “*Do you think that your studies have helped you in your day-to-day work?*” and “*If you had the opportunity, would you choose the same field of study again?*” aimed to showcase whether the respondents find useful the knowledge accumulated in their years of study and also if now, having some work experience, they would choose the same study field or they would choose differently. When it comes to the usefulness of the skills learned in college, 78.4% of the respondents say that their studies are helping them in their day-to-day work. Most of the 21.6% claiming that their studies are not currently useful either work in the IT field or they work in a different field than the one studied. Other research studies have shown that college-educated millennials have higher annual earnings, have a lower percent of unemployment and poverty, less of them live in their parents’ home and also more of them are getting married, compared to millennials that do not have a degree. On the other hand, millennials with just a high school degree are living worse lives compared to previous generations (X’ers and Baby Boomers) that only had high school education. According to a *Pew Research Center* report, the average household income for a “Early Baby Boomer” without higher studies (only high school education) was 50 097 \$ in 2012, with only about 7% of them living in poverty. At the same time, the average household income for a “Millennial” without higher studies was 39 842 \$ in 2012, with 22% of them living in poverty (Caumont, 2014). The combination of high expectations that millennials usually have from their work environment together with no experience and/or studies is clearly showing in the numbers, making it more “costly” for millennials to not get a college degree, especially when compared to previous generations. The answer to the fifth question however, shows that even though more than 78% of millennials find their studies to be helpful in their day-to-day routine, only 54,9% would choose the same study field again. Compared to other generations, millennials managed to acquire a reputation of being “job hoppers”. As baby boomers grew up, the tough economic times forced them to see work as a necessity, both for them and their families, aiming to provide “food on the table”. For millennials however, work is not only a place that provides the sufficient material resources to survive, but rather a place where they can enjoy a pleasant environment, a place where they can learn and grow. Work-life balance is very important to them, as well as job recognition and career development. According to a recent study made by Rachel C. Roloff from the University of Wisconsin, millennial workers will exchange approximately 20 jobs in their career, more than three times the number of jobs that previous

generations used to have (Roloff, 2021). Considering all this data, it makes sense that almost half of the respondents (45,1%) would choose a different study field if they had the chance, as changing jobs often requires more skills (and also new skills) to be learned in a sustained manner.

The sixth question “*What % of the people you know work in a field related to their studies?*” aims to get an estimation from the research group about how many of the people they know work in a field related to their formal education. As you can see in the *Figure 2* below, the results are fairly interesting. Even though in a previous question most of the respondents (54,9%)

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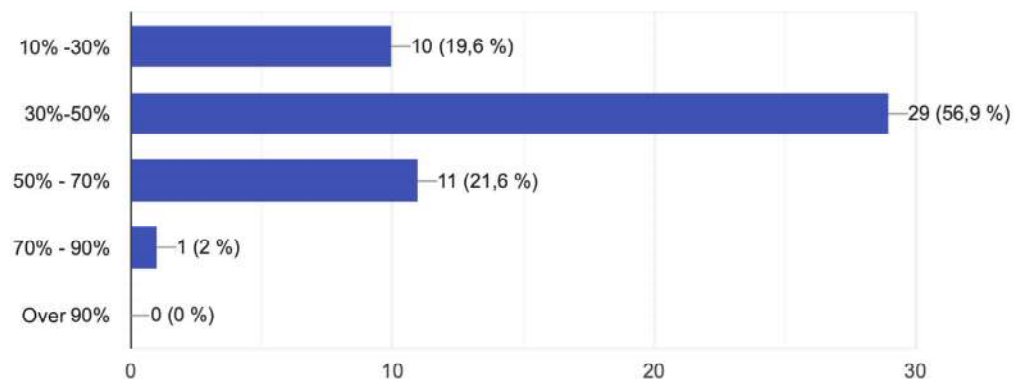


Figure 2 - Estimation of study / work field ratio for respondents acquaintances

Source: Author's own research.

claimed that they would choose the same field of study if they had the chance, more than 76% of them say that less than half of their acquaintances work in a field related to their formal education. This leads us to believe that some percentage of the study field might have internal frustrations regarding their education choices, tacitly considering that they could have made a better choice or that school was not mandatory for their current job and they just “lost” three or four years of their lives. This happens because students tend to commit to a certain study program, even though they conclude early on that the respective program is not “suitable” for them. Among many factors, there is a “social confirmation mechanism” that encourage students to commit to a certain field of work, having a feeling that their future “is set in stone” after graduating with a certain college degree. Over time this gives rise to frustrations, leading individuals to ask themselves if they made the best possible choice (Vulperhorst et al., 2021).

The seventh question of the questionnaire “*When you want to gain new knowledge in a unknown field, it is easier for you to learn by actually working on a project or do you think it is better to acquire theoretical knowledge regarding that new field first?*” aimed to reveal what the respondents believe is the best approach when it comes to gaining new knowledge. The answers clearly tipped the balance towards the practical side of things, with 64.7% of the respondents claiming that they would rather work on an actual project in order gain new skills and knowledge rather than learn the theory first. This brings us back to the main topic of this paper, which is finding out whether empirical learning is more useful/better than theoretical learning. The questionnaire presented above aimed to get insights about people perspective from the “lower-

end” of the scale, more precisely from individuals which are just starting their careers – millennials. In the second part of this paper, in order to have a better overall picture, we also

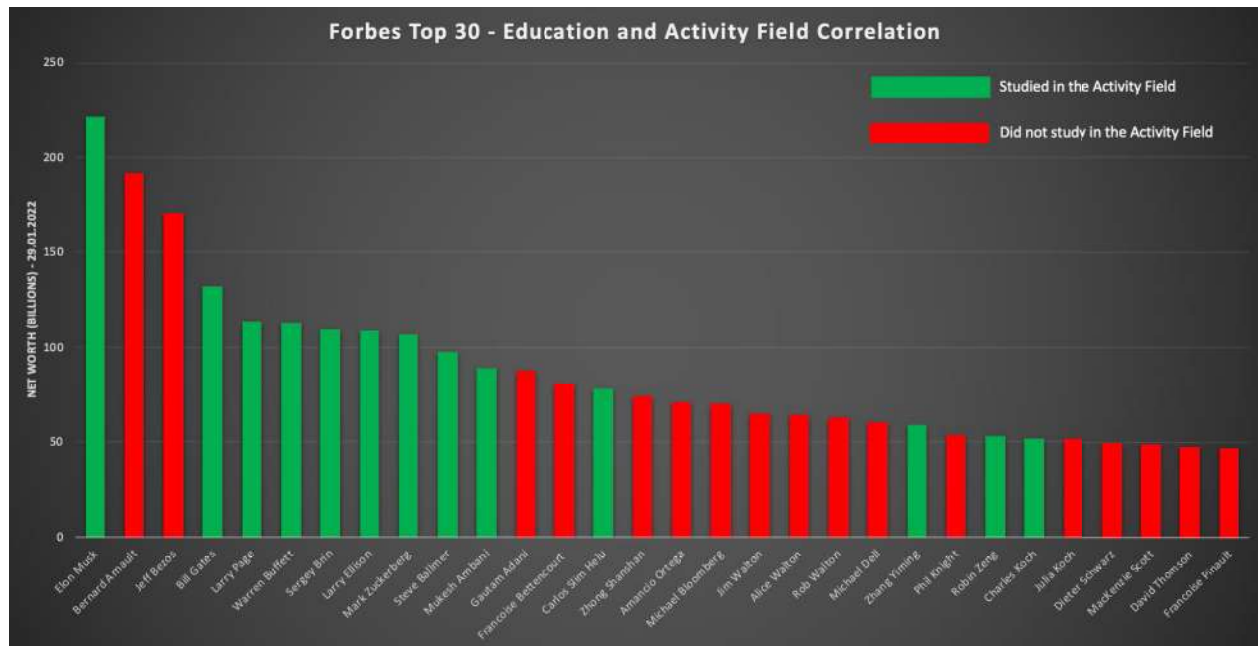


Figure 3 - Forbes Top 30 - Education and Activity Field Correlation

Source: Author’s own research.

analyzed the “higher-end” of the work spectrum, namely the wealthiest individuals on the planet. We can observe the distilled results in the *Figure 3* bellow, with some interesting trends standing out from the data.

On the horizontal axis we have the richest 30 individuals on the planet and on the vertical axis, we have their wealth in billions of dollars. The study consisted in researching each of the 30 individuals background in order to determine who had a formal education background in the field of activity when business “boomed” and who did not. We can clearly see that 80% out of the top 10 richest individuals had a college degree in a field related to their work, while only 25% of the next 20 richest individuals had studies in a field related to their activity. This percentage makes sense, with 80% of the top 10 individuals actually being the founders of their company, compared to only 50% from the rest of the 20 individuals. What *Figure 3* actually shows us, in short terms, is that statistically, formal education is very helpful if you want to found a very disruptive company that stands out. On the other hand, most of the Forbes Top 30 individuals did not have formal studies in their field of activity when starting, meaning that they learned it by doing. So, depending on what your goals in life are, formal education can either be helpful or it can be replaced by empirical learning.

Conclusion

There are several conclusions that can be extracted from this study, as the research was divided between two main approaches. The first part of the study was focused on millennials that had a bachelor’s degree or higher, aiming to gain insights about their take on studying and jobs with the help of a questionnaire. By analyzing the questionnaire data, we managed to conclude that the technical and the economic sectors were some of the more popular choices among the study

group, adding up to 60% of the formal studies and also 60% of the respondents daily activities. Also, most of the participants stated that the skills learned in college and during their formal education were helping them in their day-to-day activities, with the majority affirming that they would choose the same study field again, if they would have the chance. Out of their acquaintances, more than half work in a field different that the one they have formal education in, suggesting that inevitably they had to learn the necessary skills for the new job in a tacit/empiric manner, most likely on site or from a mentor (Reis, 2018). When asked if they would rather gain new knowledge in a practical way by participating in a project or in the classical way, by learning the theory first, 64,7% of the respondents claimed that they prefer the empirical way, which is to actually take part in a project. Corroborating the fact that most of the people work in a field different from their studied field and that most would sooner learn by doing rather than learning theory by heart, we can affirm that for this particular study group, empiric learning could potentially be more efficient.

The second part of the study was focused on the “higher-end” of the spectrum, more precisely on the education-activity field correlation for the Forbes Top 30 individuals. The data revealed us that for the top 10 richest people on earth, education was part of the process, with 80% of them having a degree or formal studies related to their business field. On the other hand, for the next 20 richest individuals on the planet, business was not necessarily related to their formal education, with only 25% of them having a degree in a related field. This shows that in order to become the absolute best in your work field or in business, formal education is a must. Nevertheless, if one’s goal is not necessarily to be the best or the most innovative in a certain activity field, a lot can be achieved by gaining hands-on experience and tacit knowledge, this seeming to be the more popular approach of doing things. This research paper does have its clear limitations, mainly the finite number of participants in the study and also the limited number of rich individuals whose background was researched. Taking into account everything presented above one conclusion springs to mind, no matter what one’s career choices are and what domain of activity he or she wishes to participate in, having a college degree can in no way, shape or form cause harm to future activities.

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