Ahmet Ferda Seymen
Department Heads, Assistant
Managers, Section Heads,
Supervisors Istanbul, Turkey

Analysis of "Ministry of Education's 2014-2019 "Strategic Plan" and Tubitak's "2023 Vision" Report in relation to the population and traits of Y & Z Generations in Turkey

Ahmet Ferda Seymen

Abstract

This study analyzes the national education system in reference to 2014-2019 Strategic Plan of the ministry and the 2023 Vision Report of Tubitak. Historically the republics country wide education program has been prepared and developed since 1920 by the ministry with the aid of other related institutions and councils. The aim of this study is to find out the new implementations to the system with a focus on the new generations of the country. To support the study and its hypothesis, it was necessary to investigate the breakdown of the national population by age groups to pin point the numbers of Y & Z generations and their percentage to the total population. Furthermore the study's mission is to find out whether the official reports above analyses or made reference to the characteristics and the needs of new generations of the country indicating the changes required within the educational system due to their peculiarities.

The two reports which are the main source of information with regard to the national educational works and programs prepared by the Turkish Ministry of Education and the reputable national agency of Tubitak (The Scientific and Technological Research Council of Turkey).

The study will also investigate in summary, the implementations within the secondary education system particularly in the United States of America through the recent "Encoding" and "Stem" systems and will make reference to mention Industry 4.0 implications in Germany, Europe.

The research method is an argumentative research with a hypothesis to prove if the strategic and the vision reports look at the future educational programs from the perspective of future generations?

Keywords: Strategic Plan, Vision Report, Y&Z generations, Generational traits, Population, Secondary education, Encoding, Stem, Industry 4.0

Introduction

The research will unfold by investigating, (A) the total national population and the percentage of Turkish population by age groups. The information below has been obtained from official sources which lists the population numbers and percentages of Turkey as of 2016. The second step (B) will make references to the characteristics of Y&Z generations through literature reviews. The third step (C) will review information regarding the US implications particularly in the secondary education system briefly through the recent "Encoding" and "Stem" systems. As well as the Industry 4,0 project utilized by Germany to integrate production and IT sectors with an aim to combine it with the educational system. Finally the suggestions section will be followed by the declaration of the hypothesis.

Correspondence:
Ahmet Ferda Seymen
Department Heads, Assistant
Managers, Section Heads,
Supervisors Istanbul, Turkey

Literature Review

A. Percentage of Turkish population by age groups in 2016

Year	Age Group	Population	Percentage	
2016	0-4	6.459.295	% 8,09	Z
2016	5-9	6.337.444	% 7,94	Z
2016	10-14	6.129.043	% 7,68	Z
2016	15-19	6.623.319	% 8,30	Z
2016	20-24	6.365.723	% 7,98	Y
2016	25-29	6.246.041	% 7,83	Y
2016	30-34	6.310.411	% 7,91	
2016	35-39	6.494.333	% 8,14	
2016	40-44	5.634.317	% 7,06	
2016	45-49	4.748.514	% 5,95	
2016	50-54	4.756.244	% 5,96	
2016	55-59	3.715.736	% 4,66	
2016	60-64	3.342.948	% 4,19	
2016	65-69	2.412.537	% 3,02	
2016	70-74	1.680.492	% 2,11	
2016	75-79	1.202.050	% 1,51	
2016	80-84	809.325	% 1,01	
2016	85-89	401.758	% 0,50	
2016	90+	145.341	% 0,18	
2016	0-19	25.549.101	32.01	Z
2016	20-29	12.611.764	15.81	Y
Total Y+ Z	0-29	38.160.865	47.82	Y+Z
Total Population 2016	**0-90+**	**79.814.871**	**%100.00**	

http://www.nufusu.com/turkiye-nufusu-yas-gruplari

The findings above illustrate that nearly %50 of the population is made up of Y (%15, 81) and Z (%32, 01) total Turkish population. In reality this very high percentage indicates a very young and dynamic population which can have a positive impact in the future development of the country. Economically a high number of work-force is an advantage providing the government, institutions and the private sector generates jobs and development projects nationwide. It is also important that the government will budget less resources to pay pensions and health care expenditures for older population. However, this can only be achieved by studying in detail the traits of the generation which makes up the population. Life changes constantly with the new technological advancements, new generation is technologically advanced and have a different view of life from their parents and even less older-family members. The values, perception of life changes with the rapid development of technology. In order to keep up with the changes, compete with already developed and developing countries or even maintain at the same level all national institutions, government and private sector has to change in accordance to the technology and the needs of the new generation. The population index is a good indicator of countries human resources, the effective use of human resources can be made possible through the modernization and improvement of programs in the educational system.

B. Traits of Y & Z Generation
Generation Y
This generation is also named as the Millennials. They are individuals who were born in 1980 to 1996 and constitute approximately %16 of the total population. These individuals have already graduated from their schools and currently are working as employees, managers and even business holders. When compared to generation Z they have lived in better economic conditions and have not dealt with the recent global economic crises and terrorism.

This generation grew up within the digital era and have witnessed the rapid development of technologic advancements during their upbringing. They are capable of locating and using valuable data through internet. They are tech savvy and very active using the social media with all trendy applications.
http://luckyattitude.co.uk/millennial-characteristics/
It is predicted that by the year 2050 the Millennials will constitute %50 of the working population. They are known for using and sharing of global communication and information much better than the previous generation.
Now they're in the workforce, it should be no surprise that they are working differently too. But often those differences are reduced to lazy stereotypes. So what are the myths about millennial workers, and how true are they?

Millennials set the bar too high because of a sense of entitlement
"The millennials work hard to find a work that they are passionate about. Here then is the paradox of the way work is viewed by many in this generation: they do not want to settle for an unsatisfying job that will barely allow them to get by but, at the same time, they have no choice but to take an unsatisfying job so they can afford to pursue their passion.
Generation Y has the desire to to match personal values with work and is not content with just a work simply because "I'm not willing to give up most of my life for this because I'm a person, a human being that wants to be happy."

Millennials are lazy
Millennials naturally see things slightly differently. Presentism doesn't make sense to people used to working on the move. Why be anchored to your desk for eight hours when you can reply to those emails and start drafting notes during your commute into work, or even in a cafe? That's

not laziness, that's just working smarter, as millennials may see it.

"One of the characteristics of millennials, besides the fact that they are masters of digital communication, is that they are primed to do well by doing well. Almost 70% say that giving back and being civically engaged are their highest priorities."

About half of millennials globally have shunned work, and even potential employers, that conflict with their beliefs, according to Deloitte's millennial survey. This suggests millennials don't have a problem with standing their ground when asked to do something that goes against their values.

Millennials work to live rather than live to work

Millennials prefer to work jobs which add value to the quality of their life. They are not keen to do just any work. Hence they search for jobs which match their beliefs and commitment to the work place and society.

Millennials are compulsive job-hoppers

Just as millennials enter the workforce in greater numbers, there is a stack of literature characterizing them as job-hopping, needy, deluded narcissists. While it is true many may have one foot out the door – and according to a Deloitte survey two of every three millennials hope to move on from their current employer by 2020 – young people moving on isn't exceptional to Generation Y.

The characterization of Generation Y as needy employees who crave constant positive feedback may not be far from the truth, however. Of those millennials who said they planned to leave their company in the next two years, 71% said it was because their "leadership skills were not being fully developed".

Millennials have little time for experienced colleagues

Other things millennials value in the workplace are "reverse mentoring" – the opportunity to teach skills to older colleagues as well as learn from them – and more time spent discussing new ways of working, mentoring and developing leadership skills.
https://www.theguardian.com/world/2016/mar/15/millennials-work-five-stereotypes-generation-y-jobs

Are Millennials Narcissist?

According to a recent survey it was pointed out that Y generation carries traits of Narcissism. As this rests as a speculation the reasons could be linked to the internet applications widely used today and develop at an increasing rate by the advancement of technology. Some examples are; Facebook, Instagram, Snapchat, WhatsApp etc. People who are using and sharing these applications who believe that their popularity will increase by obtaining more and more followers tend to exhibit narcissistic behavior patterns.
https://www.theguardian.com/world/2016/mar/17/i-narcissist-vanity-social-media-and-the-human-condition

Who are Millennials?

Generation Y could be identified as the age group in between 1980-2000 and currently they are between 16-36 years old. Generation Y has already graduated from schools and are engaged in the workforce.

What are their features?

They are very competent in using the internet, and its applications. They grew up watching TV and playing computer-digital games. They are active, like to be free, have high self-confidence and awareness, innovative, social and prudent beings.
https://paratic.com/y-kusagi-nedir-ozellikleri-nelerdir/
Millennials prefer to working in comfortable environments, not like to be confined to an office and produce work during office hours. They believe that they can perform and produce better if they are left at their own pace.

Millennials of today

Their characteristic peculiarities are as follows;
Do not like authority, wants to be free, under performers if and when they are confined with rules and regulations, have high self-confidence, want to be acknowledged. Want recognition, looks for promotion and believer in self education to move up the ladder. They are persistent and resist to ideas they do not believe in. they thrive in social media and can be very productive when they are left alone to do the things they want and believe in.
http://www.acikbilim.com/2013/09/dosyalar/nesiller-ayriliyor-x-y-ve-z-nesilleri.html

Deloitte's Report on Millennials in Turkey

The research shows that %54 of generation Y who are actively working in Turkey today wish to leave their current jobs at this moment. Reasons for their motive is that they believe their leadership competences are not being taken into consideration and ignored in their current capacity. They look for companies who are committed to the human element, and have instruments to invest in the development of the human element.
https://www2.deloitte.com/tr/tr/ps/about-deloitte/articles/millennialsurvey-tr.html#

Generation Z

Although in some articles the beginning of the era of generation Z is listed as 1995, yet in some articles this is listed as 1996-1997.

Jobbio.com

This generation was part of the digital world from the moment they were born with smart phones, video, internet and visual technology being there all along. Generation Z is generally pragmatic and realist (utilitarian-pragmatic) they are risk avoiders when compared to the preceding generations. They do not like the idea to get financial loans, they rather work a second part-time job to increase their income. They also like to invest into their retirement.

This generation is very capable of using the advanced technology to their advantage. The existing programs and tools will not be sufficient for them as they are in the quest to search and develop more advanced software programs and applications.

Z zone has a more entrepreneurial personality, open to new ideas and technological developments. They are also eager to improve themselves as they are quick learners. Their focus on any subject is less than 8 seconds which makes their attention span very short. In this respect it is necessary to be very impressive and direct in order to get their attention. Otherwise you will lose them.
https://info.jobbio.com/gen-z-ebook/

Digital media and program users
25% connect a digital device after 5 minutes of awakening
73% connect a device in 1 hour of awakening
70% use YouTube, Facebook, Instagram, and Snapchat
68% believe that face-to-face communication is important
68% do purchasing using the internet
https://agameautotrader.com/agame/pdf/2016-gen-z-study-autotrader-kbb.pdf

Meet the New Generation Customers; GEN Z
Your current customers may be the Millennials but your future customers will be the Z generation. These people are the ones which have been born right in the center of technology, hence it is very important to understand their behavior patterns which can inspire you to make the necessary changes in your products.
Although they might not have purchased any of your goods, it is extremely important to understand their needs in order to develop your products accordingly. The Z generation seem to know A to Z of internet and are quite determined and passionate about working. It's time for you to recognize them before it's too late.
 25.9% of the population in America, comprise of individuals under the age of 19.
- Gen Z knows how to educate themselves and how to acquire information.
- Gen Z are mature, competent, and self-sufficient individuals.
- 33% learn through on-line modules and applications.
- 20% uses textbooks and tablets.
- 32% work with their classmates on-line.
- 52% use the social media and YouTube to research homework.
- 76% wish that their hobbies should be their full-time jobs.
- 80% of high school students are more ambitious than their peers.
- 70% of high school students want to set up their own business.
- 41% spends more than three hours on the computer outside of school.
- 60% want their jobs to change the world passively.
- 76% are dealing with the effects of humanity on the universe.
- GEN Z's average attention span is 8 seconds.
- GEN Z's want to make a difference in the world.
- 26% of Z population between the ages of 16-19 are volunteers.
- 25% of Z population between the ages of 13-17 have stopped using the Facebook in 2014.
http://www.socialbusinesstr.com/2015/03/30/yeni-nesil-musteri-z-jenerasyonu/

Today's 16-year-olds — part of Generation Z — live in a world that's very different from 10 years ago. Unlike Millennials, Gen Z has never known the peace and prosperity of the 1990s, only the Great Recession and the war on terror. As a result, Gen Z is conscientious,

Attitudes & Behaviors; Realists. Product of hard times, global conflict and economic woes that both they and their Gen X parents experienced during formative years.

Where does Gen Z go to learn skills?
It's not just college. In fact, 85% of Gen Z watched at least one online video in the past week to learn a new skill. While we don't know how much of this viewing is done on YouTube, it paints a picture of how integral the digital world is to the life of Gen Z—even in seemingly simple things like learning a new skill—and how this might translate into trust, even trust in advertisements.

Ratings and reviews can close the sale with Gen Z
You've probably guessed that Gen Z puts a lot of confidence in online ratings and reviews—even though it is second to the influence of family and friends. When asked whether Gen Z used online ratings and reviews in the past 30 days to make certain purchases, their customer pathway is clear. Whether it's to buy a product online (72%), purchase an item (78%), pick a movie (69%), decide not to purchase an item (66%), or eat at a restaurant (53%), Gen Z has strongly integrated online ratings and reviews into the fabric of their consumer decision-making (right after the influence of Mom, Dad, and friends!). 52% of Gen Z even uses ratings and reviews while shopping at a retail store to comparison shop or price match online while physically in the store.
http://3pur2814p18t46fuop22hvvu.wpengine.netdna-cdn.com/wp-content/uploads/2017/04/The-State-of-Gen-Z-2017-White-Paper-c-2017-The-Center-for-Generational-Kinetics.pdf

True Digital Natives;
25% actively connected within 5 minutes of waking up
73% connected within an hour or less of waking up
70% use YouTube, making it the top social media site, followed by Facebook, Instagram and Snapchat
68% agree that face to face interaction is important
68% shopping online are as comfortable as offline
Gen Z's may be young, but the economic conditions of their time have deeply affected their spending habits. Today, they influence $200 billion in annual spending power annually on parental or household purchases just in the US. By 2020, their purchasing power will equal the GDP of some small countries. However, they're by nature more cautious spenders, less likely to be influenced by prestige and more likely to be influenced by safety and practicality peppered with technology. They'll never be, go or do without technology. It's in their DNA.
https://agameautotrader.com/agame/pdf/2016-gen-z-study-autotrader-kbb.pdf
Do we know the children of generation Z? The findings of the First Institute of Behavioral Sciences (DBE) are as follows:

Indigo and Crystal children: "Indigo" and "Crystal" children, also referred to as "Z Generation are born as of year 2000.

Children of Technology: They were born and take part the center of the technological era. Hence they are very skilled in using the latest technological apps and tools. In this respect internet addiction is part of their life and will have a serious adaptation to life without the usage of internet technology. However, they need to focus on digital technology rather than internet addiction.

World without technology: GEN Z constitutes of a population which does not know a life without technology. They do not need to play a game with a friend, they can use a tablet or a mobile device to play a digital game on-line.

They obtain information very easily: The obtaining of information is very easy for GEN Z. There are vast amount of data available out there, it is not an issue of finding information but it is more important to find the right information and use that most effectively. Hence, they will need to be trained in this respect as stated above "they need to focus on digital technology rather than internet addiction".

Learn other cultures: This generation has an interest to be in touch with other cultures across the world. In this respect it is very important to analyze, tabulate and share valuable information and data with respect to cultural differences norms and values.

They like to work?
Monster Worldwide the American career institute accepts population of Gen Z born in 1995-2016. This assumption makes the GEN Z's not only high school students but also university attendants and even some of the current work force.
Two thousand high-school and college students were involved in a recent research with the following findings:

GEN Z is more hardworking than X and Y generations: GEN Z is willing to work longer hours than their predecessor's

Earn more salary: 58% of GEN Z's are willing to work on weekends, evenings and after hours to make more money. This rate is 45% for Gen Y and 33% for Gen X, which makes GEN Z better than the previous generation.

Entrepreneurs: 49% of GEN Z' are involved in setting up of their own business. This rate ids only 32% in previous generations.

Technology is indispensable for GEN Z: Technology Research shows the importance of technology in order to work well with GEN Z. Technology is indispensable for GEN Z. 57% of the Z generation thinks that they are much more productive by using the technology. For 39% the usage of mobile phones are a must while 37% indicate that lap-tops are a must.
http://www.egitimcaddesi.com/z-kusagi-cocuklarini-taniyor-muyuz/

Different Traits of Millennials and Gen Z

Millennials	GEN Z
Tech Savvy: 2 Screens Share	All Tech Innate: 5 Screens Share cautiously
Armchair Activist	Active volunteer
Multi-cultural Tolerance	Togetherness
Immature	Mature
Communicate with Text	Communicate with Images/video
Share Stuff	Make Stuff
Have Low Confidence	Have Humility
Now Focused	Future Focused
Optimists	Realists
Waiting to be discovered	Want to Work for Success
Team Orientation	Collective Conscious

Previous generations had a much more relaxed attitude towards timeliness. Generation Z, not so much. Maybe it's because of increased Internet speeds, but Gen Z wants to have "Their problem solved before they know they have one". And they want that information/video/photo to be delivered—to their phones—before they even realize they want it.
Get it done! Now! Generation Z is the most socially and economically diverse generation in history, and they want to be addressed as individuals, not "teenagers" or "girls," etc. The good news: "They welcome personalized marketing".
Generation Z's attention span is short and they use as many as five different screens during the day. Focus on short messages, front-loaded with enough attention-grabbers and "click bait" to entice even the most distracted minds. This generation is much less active than previous generations. In some cases, sport is viewed as a tool for health instead of play and gaming may have replaced outdoor activities. Five preferred number of screens for multitasking (TV, Phone, Laptop, Desktop, IPOD, or other portable music player)
Ask a Gen Z'er how the homework is going. In one hand she holds a smart phone on which she is managing multiple Facebook conversations. It also buzzes quietly when a text or Snapchat message comes through. She is viewing a YouTube video on her tablet. And a sitcom is playing on a laptop. "It's going great," she says. You wonder how anyone can get anything done with all this multitasking.
https://www.ijser.org/onlineResearchPaperViewer.aspx?How-prepared-is-the-Turkish-Hotel-Industry-for-Generation-Z-as-their-guests-and-employees.pdf

Recent applications in educational systems
Changes in the secondary education
Recent research concerning secondary education in US reveal that new systems have been implemented in the US as of 2012. Specifically the implementation of STEM in the US is focused to use creativity by thinking analytically to solve problems. STEM stands for (Science, Technology, Engineering and Mathematics).
http://www.egitimdeteknoloji.com/author/dalida-ekbenli/
The ideal future of U.S. STEM education would emphasize problem-solving, interdisciplinary approaches and the value of discovery and play, according to a new 10-year vision from the American Institutes for Research for the U.S. Department of Education's STEM Initiatives Team.
The STEM 2026 vision includes six components:
1. Engaged and networked communities of practice. Schools and preschools need to build connections to each other and with STEM professionals who can serve as mentors.
2. Accessible learning activities that invite intentional play and risk. Such activities as games "offer low barriers to entry and encourage creative expression of ideas, while still engaging diverse students in complex content and difficult content."
3. Educational experiences that include interdisciplinary approaches to solving "grand challenges."
   Students tackling problems related to food, water, housing, transportation and so on can become engaged, draw on different fields of knowledge, develop teamwork and propose innovative approaches and solutions.
4. Flexible and inclusive learning spaces. Teachers and students need flexibility in structures, equipment and

access to materials in both the classroom and the natural world, as well as environments augmented by virtual and technology-based platforms.

5. Innovative and accessible measures of learning. While evaluating, measuring, and assessing core content knowledge remains important, the future measures of learning envisioned by project contributors also reflect the skills and personal qualities that undergird academic tenacity and competence, as well as lifelong learning 10 to 20 years down the road.

6. Societal and cultural images and environments that promote diversity and opportunity in STEM. The report urges the purveyors of popular culture to portray positively those who excel in science to counter stereotypes and mitigate biases that have historically prevented certain groups from fully participating in STEM fields.
https://www.eschoolnews.com/2016/09/19/6-ways-bolster-stem-education-future/

The other implementation in education; Encoding and decoding

In computers, encoding is the process of putting a sequence of characters (letters, numbers, punctuation, and certain symbols) into a specialized format for efficient transmission or storage. Decoding is the opposite process -- the conversion of an encoded format back into the original sequence of characters. Encoding and decoding are used in data communications, networking, and storage. The term is especially applicable to radio (wireless) communications systems.

The code used by most computers for text files is known as ASCII (American Standard Code for Information Interchange, pronounced ASK-ee). ASCII can depict uppercase and lowercase alphabetic characters, numerals, punctuation marks, and common symbols.

The terms encoding and decoding are often used in reference to the processes of analog-to-digital conversion and digital-to-analog conversion. In this sense, these terms can apply to any form of data, including text, images, audio, video, multimedia, computer programs, or signals in sensors, telemetry, and control systems. Encoding should not be confused with encryption.
http://searchnetworking.techtarget.com/definition/encoding-and-decoding

Turkish ministry of education reveal that the encoding and STEM systems in primary and secondary education will commence as of 2017. However, it is important to educate the teachers and introduce the subsystems such technological equipment and materials country-wide. The implementation should be to complete the process regarding materials, infrastructure and the teaching of squad in order to prevent delays in educational system.

"Encoding is the first step to software programming. Learning the basics of computer programming will allow students to comprehend internet and digital technology in their lives.
http://www.hurriyet.com.tr/10-soruda-kodlama-egitimi-40076661/

In parallel to the above implementations this research will make reference to Industry 4.0

Industry 4.0, is the digital transformation of manufacturing, leveraging third platform technologies, such as Big Data/Analytics and innovation accelerators, such as the (Industrial) Internet of Things; and requiring the convergence of IT *(Information Technology)* and OT *(Operational Technology)*, robotics, data, cognitive computing and manufacturing processes to realize connected factories, smart decentralized manufacturing, self-optimizing systems and the digital supply chain in the information-driven cyber-physical environment of the 4th industrial revolution *(sometimes called 4IR)*.

Industry 4.0 also stands for the fourth industrial revolution as such. It is a new stage in the organization and control regarding the end-to-end value chain across the life cycle of products whereby increasing demand of customers for personalization is a driving force and flexibility, as-a-service models and the use of information technology go hand in hand with a move towards more autonomous decision making, a changing role for the workforce, new industrial organizational and collaborative paradigms and connected cyber-physical systems with security by design and turning data from various IT and OT systems into intelligence, decisions and new business models as leading principles.

The initial goals in Industry 4.0 typically are automation, (manufacturing) process improvement and productivity/production optimization; the more mature goals are innovation and the transition to new business models and revenue sources with information and services as cornerstones.

Industry 4.0 is also called 'smart industry', 'intelligent industry', 'smart factory' or 'smart manufacturing'. In many senses it is related to the Industrial Internet and since 2016 the Industrial Internet Consortium and Industry 4.0 platform, *"Platform Industry 4.0"*, indeed started collaborating.

This is probably not the shortest Industry 4.0 definition ever and it does contain some terms we might need to explain further such as the third platform and innovation accelerators as they exist in the DX (digital transformation) economy, as well as the integration of IT and OT, which is key in the cyber-physical context of Industry 4.0 as we'll see.

A shorter definition of Industry 4.0: the information-intensive transformation of manufacturing in a connected environment of data, people, processes, services, systems and production assets with the generation, leverage and utilization of actionable information as a way and means to realize the smart factory and new manufacturing ecosystems.
https://www.i-scoop.eu/industry-4-0/

The intention of the study is to reveal the importance of STEM, Encoding and Industry 4,0 and their integration with the educational system of the country. However, one needs to take into consideration that such applictions are already being applied in countries around the world in an effort to integrate with their educational system to be competitive and further develop them self's technologically and economically. When Turkey is compared to the US which has introduced the STEM system in 2012, it is in a disadvantage situation, as it is already late to compete with this country. Introducing any system will need time to develop and produce measurable results which may take anywhere from 5 to 10 years. With the same perspective the studying of the traits of Millennials as well as the Gen Z will shed light into the future development of the country. All research and investigation regarding development and

change must take the generational behavior patterns into consideration. Without these the puzzle will never be able to fit, as the country will always be the importer of technology, goods, and know-how from much developed nations.

Higher Education
In order to further build up the hypothesis a recent study regarding the existing curriculum of major reputable Turkish tourism & hotel vocational schools (offering a 2 year Associate degree) were investigated with the aim to to align school's curriculum and their academic programs to support the industry in accordance with the changing customer needs and expectations also to find the degree of consistency with the curriculum of nine (9) reputable Tourism & Hotel Vocational Schools of Turkey.

The outcome of the study revealed that schools provided very similar curriculums with highly theoretical education which is are not relevant with the entry-level positions needed by the hotel industry. The programs offered are aimed to raise a managerial level personnel who are over qualified for the day to day functions of the industry. Hence the schools providing a two year education must focus on the entry level competencies rather than more varied and complex curriculum offered by the four year education programs with a License degree as an output.

It is also noted that while preparing the curriculums in accordance with the Ministry of Education-Universities & Higher Education (YOK) the traits of Y and Z generations were not taken into consideration.
https://www.ijser.org/onlineResearchPaperViewr.aspx?The-need-to-align-the-curriculum-of-Turkish-tourism-hotel-vocational-schoolswith-the-changes-demands-of-the-hotel-industry.pdf

Analysis of 2014-2019 Strategic Report – Turkish Ministry of Education
B. Legal Liabilities and Legislation.
The tasks and responsibilities of the ministry has been defined under 11 statutes, while 1, 2, 3, 6 are found relevant to the study.
1. The preparation of future education and training will need to be consistent with the modern examples of the world. The programs will contain information which will allow the nation to compete with advanced systems and countries of the world. The system starting with pre-school, secondary education as well as the higher education will contain national values, cultural and social competencies to provide a better future.
2. The education and training program should be in-line with national policies and strategies. The implementation of programs should be developed, monitored and changed accordingly.
3. Educational programs need to be designed with relevant technical models; open to new ideas and implementations. The system should be dynamic and in parallel to economic and social changes and developments.
4. The system should also contain material and programs for people with special abilities and talents. The ministry will design, implement and monitor such programs.
Page 22

C. Areas of responsibility and operations
Access to education. Educational needs of citizens outside of Turkey. Educational needs of foreign students. Providing of Life-long educational programs. Curriculums of programs. On-line educational programs. Programs for people with special abilities and talents. Personal development with the application of vocational counselling. Supplying educational materials and equipment. Programs for social protection. Promoting scholarships and grants. Increase and develop programs to raise employment levels to fight unemployment.
ibid, pages. 23, 24
The ministry outlines education & training under 4 points, while 3 & 4 are found relevant to the study.
3. To prepare local, national and international scientific, cultural and sports activities for students.
4. To encourage the participation of students in local, national and international scientific, cultural and sports activities.

Human Resources Management; this issue is covered in 8 points, while 4, 5, 6 & 8 are found relevant to the study.
4. Research & development projects and protocols.
5. Preparation of projects and protocols and their implementation and monitoring.
6. Initiation of research & development projects for education and training.
8. Effective use of exchange programs by students & teachers.

Administration & Supervision; covered in 14 points, while 1, 2, 3, 6 & 7 are found relevant to the study.
1. Identifying policies for education & training.
2. Developing of legislation and regulations for the ministry.
3. Adhering to EU educational norms and standards.
6. Collection and reporting of statistical data.
7. Preparation of strategic plan its implementation, monitoring and feedback process.

International Affairs; covered in 3 points, while 1 & 2 are found relevant to the study.
1. Collaboration with international institutions and countries in education and training areas.
2. Extend the number of international education institutions.
   Ibid, pages. 24, 25

E. Analysis of interior & exterior organization of the ministry
The organizational hierarchy and responsibilities of the ministry has been disclosed in the official journal of 28054 dated 14.9.2011.

Interior Analysis – Central Organization
The ministry as of 2015, has in total 81 national directorates in major cities, and 919 provincial directorate of national education units in Turkey. These facilities are governed by the Minister, and deputy ministers, undersecretary and councilors, operational units, instructional and educational boards. There are 22 departments constituting the interior organization. Below are the ones which is relevant to the study.

Operational units are as follows:
1. General Directorate* (GD) for basic education
2. GD for secondary education
3. GD for Vocational & Technical education
6. GD for Life-Long learning
8. GD for innovation and educational technologies
9. GD for teacher training and improvement
10. GD for EU and foreign affairs
15. GD for Strategy development
Ibid, pages 26-27

Overseas Organizations
The ministry is represented in 34 foreign countries by counselors and attaches to aid Turkish citizens regarding educational and training matters. The body is also responsible for promoting cultural values and heritage in these countries.
2. Germany
3. USA
5. Australia
6. Austria
8. Belgium
11. Denmark
12. France
14. Holland
15. England
17. Sweden
18. Switzerland
19. İtaly
20. Canada
31. Russia
Ibid, pages. 26-27

As indicated the ministry is represented in 34 foreign countries through counselors and attaches. The main reason for the overseas offices is to help educational and training needs of the Turkish citizens living in these countries which is clearly indicated in the report. As well as to promote Turkish culture & heritage. There are however, few points which need to be addressed concerning this organization.
1. All personnel including counselors & attaches should be fluent in foreign language?
2. Turkish citizen's educational needs are provided by the country they live in?
3. Personnel's main function should be to study the education & training systems of the country they are in.
4. Promoting the cultural values and heritage is the task of Ministry of Culture & Tourism.

The educational and training programs should be scrutinized by the overseas staff of the ministry in order to upgrade the current conditions of programs and systems at home.
According to Ministry reports of, December 31, 2014 a total of 929,921 personnel was working for the ministry occupying the central and overseas organizations. Below are the educational levels of the personnel in total.

Education Level	% by number & degree of education	
	Personnel	%
Ph.D.	954	0,10
Masters (Thesis)	33,206	3,57
Masters (w/o Thesis)	37,167	4,00
Bachelors	748,661	80,51
Associate degree	40,504	4,36
Institute	21,652	2,33
Sub Total	**882,144**	**94,87**
Other	47,777	5,13
Total	**929,921**	**94,87**

Ibid, page 31

Number of employees are close to 930,000 people as of 2015. By the beginning of 2017 this number has risen to 964,756 representing an increase of 34,000 people. Currently close to %95 of total employees hold degrees higher than high school diplomas. While this a good indicator the language capabilities of employees is not clear. Being in the technologically advanced society where internet and software applications are wide spread and developing almost by the second the amount of employees is a mind-provoking and a challenging issue. The ministry need to reduce the amount of workers and replace the work force with technological tools. It is also fair to note that a total of 342,000 employees are in the age group of 41-60 over. This number is equal to %34 of total work force in 2017.
http://www.kamudanhaber.net/meb/milli-egitim-bakanligi-personel-ve-ogretmen-sayisini-acikladi-h346170.html
The ministry makes reference to investigations and documentations while preparing educational and training programs. These are listed as a. fundamental documentations and b. other documentations, which are listed below;

A.
1. EU norms and progress report
2. The 10th progress report
3. Mid. term financial plan
4. Mid. term programs
5. 62nd Government Plan
6. Ministry Regulations
7. Ministries 2010–2014 Strategic Plan
8. National education council resolutions
9. National education council quality norms

B.
1. Strategic plans of other institutions
2. TÜBİTAK "Vision 2023" Education and Human Resources Report
3. "Turkey" qualifications framework
4. Strategy and activity report of information society
5. Life-long learning strategic report
6. Vocational and Technical education strategic report
7. Vocational Schools educational resolutions
8. National Teachers strategy report
9. Analysis of Turkish educational system by national and international educational institutions
Ibid, page 33

SWOT analysis of the Ministry of Education
Strengths;
• **Accessibility to education & training**
1. Able to have different educational programs to satisfy different needs
2. Varied and extensive Life-Long learning programs

• **Quality of education and training**
1. Varied amount of schools and programs for to satisfy different needs

2. Excess amount of courses in the field of Life-Long learning
3. Educated manpower to successfully prepare national and international educational projects
4. Able to manage big projects concerning the use of technology in education and trainings
5. Able to implement more participative methods in the preparation of education programs
6. Flexible regulations in working with the private sector

- **Institutional caliber**
  1. Taking into consideration the feedback of institutions while preparing educational policies
  2. The effective use of powerful informatics and digital data systems
  3. Human resources open to new ideas and change
  4. Modernization of the Ministry

Weaknesses;
- **Accessibility to education & training**
  1. Low awareness to Life-Long learning opportunities

- **Quality of education and training**
  1. Relations between institutions raising teachers and the Ministry
  2. Adequateness of scientific, social, cultural and sports activities
  3. Adequateness of foreign language courses and options

- **Institutional caliber**
  1. Conflict and over lapping of power/authority between units within the Ministry
  2. The current human resources evaluation system with regard to promotion
  3. Current state of policy & procedures with regard to be more understandable
  4. Implementing pilot projects prior to the preparation of educational programs
  5. The recording and storing of data

Opportunities;
- **Accessibility to education & training**
  1. The existence of policy and procedures regarding Life-Long learning
  2. The awareness of society regarding sustainable education systems
  3. The existence of promotions to boost educational programs and identfiying of education is a fundamental cause.

- **Quality of education and training**
  1. Increase of demand for quality education
  2. Usability of technology in education
  3. Industries openness to vocational and technical education
  4. Commencement of scientific research between educational institutions

- **Institutional caliber**
  1. Education programs are supported by fundamental documentation and reports

2. The openness of other foreign institutions and countries with Turkish counterparts

Threats
- **Accessibility to education & training**
  1. Students competencies not matched with vocational selections
  2. Addiction to internet
  3. Problems with quality of information obtained from internet

- **Quality of education and training**
  1. The rapid changes in movement of population and fast urbanization

- **Institutional caliber**
  1. The low budget of the ministry
  2. Inadequate financing of education and training by the municipalities
  3. High investment of technological infrastructure

http://sgb.meb.gov.tr/www/mill-egitim-bakanligi-2015-2019-stratejik-plani-yayinlanmistir/icerik/181

Financial Profile
The ministry estimates a budget of 110bn (Billion) USD in order to actualize steps & actions of the 2015-2019 Strategic Plan. The plan requires funds to be made available and spent during the five years of implementations.
Ibid, pages. 80-81

2003-2023 National Science & Technology Policies
Raising the required human resources
The preparation of "Vizyon 2023" report included a SWOT analysis with recommendations. The raising of required human resources is as important as the investment on technological and digital software and hardware. Hence, the shortfalls within the Human Resources area must be dealt adamantly.

The required human resources include people working in the area of research & development, people with knowledge and degrees as scientists and engineers and technical work force who can work in related industries. In order to achieve the much needed properly educated human element, the basic educational (primary-secondary) institutions should be increased in numbers well as the technical and other vocational schools combined with high schools to prevent pile-up of students enrolling to universities. It is extremely important to divert students based on their skills with the aim to educate and train them in vocational schools where most industries need the skilled labor. The educational and training systems of developed countries should be investigated and existing policies need to be changed for the needed modernization of institutions. The university programs should be re-developed to be more competitive and grant degrees consistent with the changing needs of the world.
Page 39
https://www.tubitak.gov.tr/tubitak_content_files/vizyon2023/Vizyon2023_Strateji_Belgesi.pdf

"Vizyon 2023" A general assessment of education & human recourses.
Population & Human Resources

The population in year 2000 was 67.421.000. Estimated population in 2020 is to increase to 86.405.000 [8]

The breakdown year 2020 population is estimated to be % 24 between the ages of 0-14. %68, 7' to be between the ages of 15-64. While %7, 3 between the ages of 64+ [8]

Turkey is situated partly in Europe and EMEA. Population figures above reveal that Turkey will have the youngest population in the world having younger generations than Europe and the EMEA. The young population is a main contributor to the development of the educational and training systems.

Page 24

http://www.fen.bilkent.edu.tr/~hakioglu/ymfec/EIK_Sonuc_Raporu_ve_Strat_Belg_corr.pdf

"FATİH" the national project on improvement of technology in educational institutions

The aim of "FATİH" Project is to upgrade the technological equipment, hardware and infrastructure of educational institutions and make the educational system more accessible through digital environment to the millions. [3]. Design and equipment would not only increase the access to educational portal and institutions but also raise the quality of education provided by the ministry Both the "Vizyon 2023" and "FATİH" projects are intertwined and work together to deliver the needed improvements and changes within the education and training systems. The two projects share common scientific and technological vision and policies in order to deliver the changes required. The implementations in both projects should commence, put in practice, monitored ad changed accordingly for achieved desired results. The success of both projects rely on each other.

http://ab.org.tr/ab11/kitap/akgun_yilmaz_AB11.pdf

The correlation between Y&Z generations with Ministry of Education's "Strategic Plan, 2014-2019" and Tubitak's "Vizyon 2023" Report.
Conclusion

1. The strategic report of 2014-2019 makes reference to important issues that would have an effect on the new generations:
   Points 4, 6 & 15 on page 10. Points 3 & 4 under Education & Training. Points 4, 5, 6 & 8 under Human Resources Management. Points 1, 2, 3, 6 & 7 under Administration & Supervision. Points 1 & 2 under International Affairs **o**n pages 24-25.

2. The strategic report of 2014-2019 makes reference to an education system which should be able to compete with global nations, future focused, instill national identities and norms however flexiable and open to change. Page, 10.

3. The ministry has 34 overseas offices in various countries especially the offices in 8 locations are situated in modern and developed countries can investigate and evaluate the educational systems of these countries. Page, 11.

4. The ministry has 22 overseas offices in various countries especially the offices in 14 locations are situated in modern and developed countries. Page, 11.

5. The 14 offices which are positioned in developed countries can investigate and evaluate the educational systems of these countries as their main objective rather than aiding the Turkish citizen's educational needs, as this is provided in the country they live in. It should also be noted that promoting Turkish culture and heritage is not the main objective of the ministry. This is being programed and delivered by the ministry of culture & tourism. A critical factor which needs to be clarified is the foreign language competencies of the ministries work force occupying the overseas offices. Page, 11.

6. Out of the 9 fundamental documentation & polices accepted in the preparation of the report, numbers 1, 2, 3, 4 & 7 as well as the 2, 5 & 9 out of the total 9 other documentation and policies make reference to EU criteria's and have links to future development of the educational system. Page, 12.

7. The points selected from the SWOT analysis prepared to highlight the current conditions of the education system has relevance to the study as it can affect the future generations directly. Pages, 13-14.

8. Financial Profile; the ministries budget to achieve strategic targets and objectives may very well be necessary. However, a work-force of nearly 1,000,000 people should be re-evaluated. The government offices are not developed to function as companies. They do not produce any materials, hence they have no sales and marketing issues. They are designed to serve people of the republic. Although they do not generate income to offset their costs, this does not mean they should not be cost conscious. The ministry should be cost driven and function accordingly in the areas of human recourses, machinery, equipment, assets etc. While the Minister is not equipped like a CEO he should carry the traits of a businessman, entrepreneur and an investor. The budgets, strategic reports, short & long term objectives are only good if they are realistic and achievable. With this perspective the ministry should revise all departments and functions of the organization.

9. Evaluation of the population; Strategic report of the ministry comes very close to identifying the breakdown of the population by age groups and arrives to same numbers by the national population institute. However, it is very unfortunate that there is no mention of generational traits of the young population who makeup %48, with the age group of (1-29) of the total nation. Characteristics of these people must be identified as this is vital for modernization of the education system.

10. Technological equipment and infrastructure; "Fatih" project coincides with both the "2014-2019 Strategic Report" and the "Vizyon 2023". They share same ideas and objectives in development of the educational system. However, it is important to raise the required human element such as teachers and instructors as much as the technological infrastructure and equipment.

Neither the "2014-2019 Strategic Report" nor the Tubitak' "Vizyon 2023" reports analyzes or makes reference to generations and their characteristic peculiarities. Having come so close to population break down and the future predictions of age groups no reference or analysis were made on the disposition of generations. Whether the fundamental documentations of related institutions and other organizations contained any information or analysis

of generational traits is not investigated in this study. Even if that is the case it has not been taken into consideration by the Ministry, Tubitak and Fatih projects.

Education systems are far beyond policies & procedures, legislative issues and national regulations. The programs initiated must be up-to-date, compatible with globally applied systems. The human element should always be placed in the center of the educational system. Hence, it is very important to take into consideration the peculiarities of generations and the changing ever-needs of the global systems and man-kind.

Recent study within the tourism industry produced similar results in comparison with this study. Unfortunately there is not a strategic plan involving the generations in their analysis. Currently there are a total of 21 Ministries in the Turkish government with 5 deputies of the President. Hundreds of non-government organizations, including private universities and private companies who are ranked in fortune 500, in the country. With this perspective the future of the country with regard to education and training and in similar areas need to be dealt with immediate realistic and achievable measures.

http://wwjmrd.com/vol%203/issue8/assets/121.1.pdf

Research method of this study is an argumentative research with a hypothesis to prove if the strategic and the vision reports look at the future educational programs from the perspective of future generations?

The hypothesis prove that there is no correlation between the Ministries "2014-2019 Strategic Report" and Tubitak's "Vizyon 2023" as well as the "Fatih" projects with the characteristics of Y & Z generations.

Suggestions

1. Literature obtained and used in the preparation of strategic plan remains theoretical. It is important to evaluate the decisions taken with regard to new implementations and put in practice with pilot projects across the country. This will enable to assign deadlines on sequences of projects and will allow the ministry to monitor and make effective changes during the implementation stage.

2. Commencement of the ENCODING system should be identified with a time frame indicating stages of implementation. Adequate number of trained and educated teachers and instructors to be outlined and the current status of the technological infrastructure to be identified with necessary up-grades. The outcome should allow the design of pilot projects with necessary deadlines and objectives. Project should be interlinked with "FATİH" project.

3. In order to kick start the "STEM" system similar steps should be taken with the encoding process. The most important issue is to identify the inventory of teachers and instructors who are compatible back grounds with science, technology, engineering and mathematics. The language capabilities of the total inventory is also very important in the first stages of implementation.

4. New findings through pilot projects should be re-evaluated and more realistic budgets should be prepared. İmplementations should not be generated from offices and should follow a bottom-up approach from the shop-floor. Policies & procedures with other regulative and legislative issues should be revised and made flexible.

5. Implementation of Industry 4.0 requires the integration of producers, wholesalers and retailers to be integrated with the Ministries education and training system. It is a revolution where the industry as whole will integrate with the society. This task need to be organized by related institutions, chamber of commerce and non-governmental organizations. The project is vast and will require the involvement of universities and many other institutions. This needs to be stipulated in the strategic and vision reports in detail.

6. The study will highlight current curriculum of vocational schools in an aim to raise blue-color (entry level personnel) to a specific industry.

7. https://www.ijser.org/onlineResearchPaperViewer.aspx?The-need-to-align-the-curriculum-of-Turkish-tourism-hotel-vocational-schoolswith-the-changes-demands-of-the-hotel-industry.pdf

8. Research & Development departments to be set-up and activated with personnel educated and poses foreign language capabilities. The programs of other nations and data regarding technological advancements should be tracked accordingly.

9. The study will highlight current conditions with regard to Y & Z generations in the hotel industry.

10. https://www.ijser.org/onlineResearchPaperViewer.aspx?How-prepared-is-the-Turkish-Hotel-Industry-for-Generation-Z-as-their-guests-and-employees.pdf

11. Schools and the industry as whole should plan and design national/global applications, machines, software and hardware compatible with leading producers and nations.

References

1. http://www.nufusu.com/turkiye-nufusu-yas-gruplari
2. http://luckyattitude.co.uk/millennial-characteristics/
3. https://www.theguardian.com/world/2016/mar/15/millennials-work-five-stereotypes-generation-y-jobs
4. https://www.theguardian.com/world/2016/mar/17/i-narcissist-vanity-social-media-and-the-human-condition
5. https://paratic.com/y-kusagi-nedir-ozellikleri-nelerdir/
6. http://www.acikbilim.com/2013/09/dosyalar/nesiller-ayriliyor-x-y-ve-z-nesilleri.html
7. https://www2.deloitte.com/tr/tr/ps/about-deloitte/articles/millennialsurvey-tr.html#
8. https://info.jobbio.com/gen-z-ebook/
9. https://agameautotrader.com/agame/pdf/2016-gen-z-study-autotrader-kbb.pdf
10. http://www.socialbusinesstr.com/2015/03/30/yeni-nesil-musteri-z-jenerasyonu/
11. http://www.egitimcaddesi.com/z-kusagi-cocuklarini-taniyor-muyuz/
12. https://www.ijser.org/onlineResearchPaperViewer.aspx?How-prepared-is-the-Turkish-Hotel-Industry-for-Generation-Z-as-their-guests-and-employees.pdf
13. http://www.egitimdeteknoloji.com/author/dalida-ekbenli/
14. http://www.hurriyet.com.tr/10-soruda-kodlama-egitimi-40076661
15. https://tr.wikipedia.org/wiki/End%C3%BCstri_4.0
16. https://www.ijser.org/onlineResearchPaperViewer.aspx?The-need-to-align-the-curriculum-of-Turkish-tourism-hotel-vocational-schoolswith-the-changes-demands-of-the-hotel-industry.pdf

17. http://sgb.meb.gov.tr/www/mill-egitim-bakanligi-2015-2019-stratejik-plani-yayinlanmistir/icerik/181
18. https://www.tubitak.gov.tr/tubitak_content_files/vizyon2023/Vizyon2023_Strateji_Belgesi.pdf
19. http://ab.org.tr/ab11/kitap/akgun_yilmaz_AB11.pdf
20. http://www.fen.bilkent.edu.tr/~hakioglu/ymfec/EIK_Sonuc_Raporu_ve_Strat_Belg_corr.pdf
21. http://3pur2814p18t46fuop22hvvu.wpengine.netdna-cdn.com/wp-content/uploads/2017/04/The-State-of-Gen-Z-2017-White-Paper-c-2017-The-Center-for-Generational-Kinetics.pdf
22. https://www.reference.com/business-finance/services-offered-ihg-merlin-bdf9969e995ee443