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**AWARENESS OF FORESIGHT THROUGH EDUCATION IN EGYPT:  
A CASE STUDY FROM EGYPTIAN UNIVERSITY\***

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**Abstract.** Egypt has extensive expertise and experience in future centres through cooperation between independent research institutes and its external partners. The important step forward will be the combination of this experience and the competence of Egyptian institutions to eventually develop a bottom-up regional community of connected educators, scientists, students, practitioners, policymakers and local communities for future foresight. This paper examines the current state of foresight of future and practices among Egyptian universities' faculty members and students, proposing to increase public awareness and comprehension of foresight of future promotion performance in Egypt. A questionnaire designed based on an intensive online project-based bootcamp was done by entrepreneurship club at Cairo University to increase the participants' awareness of the foresight. The questionnaire was distributed to 173 students and participants who attended the camp from 10 faculties of Cairo University and other Egyptian universities. The findings revealed that students were unaware of the Framework Foresight (FF) program and had poor knowledge. Students' awareness of the FF program correlated positively with educational level, age, gender, and specialization. This work provides an approach to understanding the quality of foresight knowledge used or generated throughout the foresight exercises and their significance in sustainable development challenges.

**Keywords:** Awareness; Foresight of Future; Egypt, Egyptian universities; Sustainable Development; Education

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## 1. Introduction

Strategic foresight, also known as future studies, helps companies anticipate opportunities and challenges and then adopt strategies to benefit competitively (Rohrbeck *et al.*, 2007). The ability of foresight techniques to expand the variety of futures addressed (Uruea, 2019) and improve future understanding is often recognised (Rhisiart, Miller, & Brooks, 2015; Edgar, Abouzeedan, & Hedner, 2011; Urueña, 2019; Rezk *et al.*, 2020).

According to (Polak 1971, 1973), "the picture of the future is constructed of the memories and expectations involved. It is a set of long-term goals that emphasize an individual's endless possibilities. An image of the future can therefore be characterized as a mental structure that addresses possible states. It consists of a blend of thoughts, beliefs, and wishes and observations and current information. This impacts both consciously and unconsciously a person's choice and derives both from the truth and from fantasy. It ultimately directs one's decisions and behaviours". Reflecting on the intended impact of these images on how our present actions and our attitude towards the future are determined, therefore, enables us to recognize the necessity for a systemic method to analyze these images.

The science of future foresight is considered one of the most promising sciences in planning, and the world has begun to pay attention to it, especially after the coronavirus pandemic emerged (Mastio & Dovey, 2021; Aichouni *et al.*, 2021; Lu *et al.*, 2021; Torres & Pena, 2021; Chen *et al.*, 2021; Bourmistrov & Amo, 2022). Thinking about foresight began institutionally in the RAND Corporation in the 1950s in the military field, and in the 1970s, foresight began to be used in Japan in science and technology and the economic field within the Shell Company. Over time, there were some Arab attempts to teach foresight from time to time, but it was not taught in Egyptian public universities on a continuous, permanent basis. Foresight is a science with methodology and methods to shape the future, search for opportunities and exploit them, and avoid risks and dealings (Rene-rohrbeck.de, 2021)

It is a systematic way of thinking, discussing, and shaping the future, and it has more than 33 ways around the world (Popper, 2008). Foresight is the first step before the planning process. It is the so-called process of forward-thinking, and we always discover and build the future with a span of 10 to 30 years. What is meant by the future here is not a single future that we discover and build, but several futures, including a preferred future, a bad future, a future in a state of stability of the current situation and a catastrophic future. Also, foresight is not limited to a specific field but extends to all fields such as the scientific, economic, political, and educational research fields (Vecchiato & Roveda, 2010; Schoemaker & Day, 2021; van Veen & Ortt, 2021; Robinson *et al.*, 2021; Vinayavekhin *et al.* 2021) discovering future technology and the status of institutions or countries and other fields (Amniattalab & Ansari, 2016; Sarpong & Maclean, 2016; Sarpong & Hartman, 2018; Haarhaus & Lienen, 2020; Burt & Nair, 2020). As mentioned previously, this paper aims to raise awareness among faculty members and students in thinking about the future and building it and using future foresight.

Foresight Education embodies a systematic process that moves students from open-ended inquiry, through rigorous research, which then opens again to reveal creative solutions based on logical, valid conclusions (Foresigh education, 2021).

An intensive online boot camp for three days, based on a project, was created to dive the participants into the fundamental aspects of foresight work. This hands-on method combines theory, exercises, and conversations in a sample project through our framework foresight process. The participants receive a textbook, reflect on the future, accompanying worksheets and a certificate of completion in advance. Foresight studies inform one about various parts of thinking about how the world operates, such as the study of causes and effects through systems thought,

societal change, and scenario planning. The curriculum is intended to immerse participants in future research and foresight analysis.

The program aims to help build capacity for up-and-coming public sector leaders to have the foresight and make decisions under uncertain conditions and risk. At the same time, the program will inspire participants to take desirable futures into their own hands, lead a life with a purpose, and enhance their self-esteem. To answer research questions on how students and participants share in the future, purposeful sampling has been used, and semi-structured online interviews have been conducted.

The following steps are followed to shift students and faculty members from thinking about the present to thinking about the future.

### **1.1. Defining future foresight and its importance**

Since the term "future foresight" was not used before in practical or educational life, many students and faculty members did not touch on that term. Here the methodology relied on simplifying the concept of future foresight through examples of the future of emerging technologies that can change the future and presenting some successful experiences for several institutions to use foresight and how foresight aims to shape the future and the difference between it and planning. The concept of foresight was introduced without going into the traditional theories but was presented as a method that aims to discover future opportunities.

### **1.2. Resist thinking about past and present problems**

One of the most important obstacles focused on raising awareness among students and faculty members in overcoming the resistance to thinking about the past and the present problems (e Cunha, Palma, & da Costa, 2006). That is considered an obstacle to thinking about the future because students or faculty members are not accustomed to thinking about the future beyond 10 years regardless of current problems. It may also be due to some people's lack of interest in the distant future and the finding that the most time we think ahead is about 5 years as a maximum. This point was challenged during their participation in the camp using letters from the future that were sent after 20 years describing it from various social, technological, and even work-related angles.

### **1.3. Training to think about the future by studying the present and the past to learn from it**

The methodology also focused on preparing for the future by knowing the topic's current status to be foreseen. Many models of interest to students and faculty members were presented to know the topic's future and differed according to the personal interests of each participant, but there was a common goal to know all the factors that affect the topic, and the intended participants were trained in some ways that is used in current situation studies such as social, environmental, political, legal, technological, and economic case studies, which is known as (PESTEL, STEEP) analysis (Acar, 2015).

This step is considered important to identify the driving or changing forces for the future of the case to be foreseen, and it allowed the participants to identify those forces that could affect the future. At the same time, it shares the uncertainty or a degree of ambiguity about the trends, whether positive or negative.

#### **1.4. Drawing future pictures and writing scenarios**

Drawing future pictures is the penultimate step in writing scenarios, and it was completed under the direction of students and faculty members to know and shape the future. This stage relied on the driving forces for change identified by the participants, and at the same time, it reflects the experience and background of each participant. Each picture of the future is a desirable and preferred image and, at the same time, a rational expectation that it can happen. Negative images have also been extracted, which can also happen if things go wrong in the future. The participants wrote the reasons that could lead to achieving that future image, as this step aims to extract both innovative and traditional ideas to reach the desired future and to avoid negative images of the future. The participants were trained in the methods of writing the script through a compilation of images and future events that are expected to occur and writing them into a personal narrative or through the descriptive narration method of the future, about the current situation that has led to the arrival of the future picture. All of these qualities will help transformative groom participants with future thinking skills that Egypt needs through:

1. Energizing the creativity
2. Expanding the connections
3. Exposure to potential future
4. Encouragement to be more aware
5. Enabling the thinking processes to expand
6. Education in different aspects of thinking

## **2. Methodology**

This study used a survey questionnaire to get primary data. Given the positive nature of the research, an in-depth assessment of the existing foresight of future knowledge and practices was initially carried out. A questionnaire online was developed for the collection of data using the Google survey tool. As mentioned below, the study procedure has been divided into three steps: survey design, data collection, and data analysis.

### **2.1. Survey Design**

The survey questionnaire was meant to help students learn about the future and validate the 2016 Rashid and Lieder model (Lieder et al. 2017) (environmental impact, resource scarcity, and economic benefits). After experts had verified the questionnaire prepared by the researchers, the researchers updated it in response to the experts' criticism. The survey questionnaire, which was divided into three sections, featured questions on the following topics: (1) the demographic characteristics of respondents, (2) their awareness of the foresight of future, and (3) foresight behaviours, covered in 18 questions.

### **2.2. Data Collection**

A Google-based online survey questionnaire was produced and disseminated to participants from various institutions and faculties. During a 15-day sampling period, around 173 faculty members and students and participants from various universities were contacted. Following the initial invites, a follow-up email reminder was sent to respondents once during the data collecting period. A total of 173 completed responses were gathered at a response rate of 100%. To guarantee informed consent and provide participants with the option to decline participation, the survey's initial page included an informational booklet about the research and data usage.

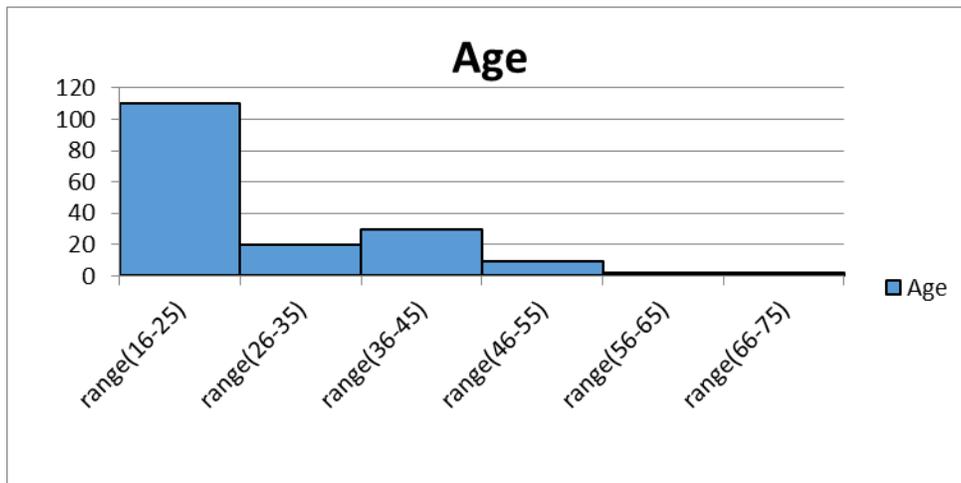
**2. 3. Data Analysis**

The last stage was to analyze the tools and procedures utilized to interpret the results. SPSS 24.0 was used to analyze the survey data. Owing to the study's exploratory nature, which was presented primarily through charts and diagrams, a *Cronbach Alpha* test was used to determine the instrument's reliability. Correlation and regression analyses were used to determine Lieder and Rashid's three-pillar, model (Lieder, Asif & Rashid, 2017).

**3. Findings and Discussion**

**3.1. Demographics**

The survey's demographic questions provided an understanding of the faculty members and students, their location, and their experience in the field (Figure 1). The more significant percentage (78%) of students came from 10 faculties at Cairo University and 22% from other higher education institutions, such as Ain Shams University and Alexandria University. The age of participants ranged between 19 and 70, with a mean age of approximately 28 years and a standard deviation of 10.69 years. Of the participants, 126 were females, and 47 were males; 79 were students, 77 were graduates, and 17 did not mention any occupational role.



**Figure 1.** Participants' age

Of the participants, 122 were from Cairo University, 10 were from Al Azhar University, and the rest were from different universities; 125 participants were from the faculty of science, 12 were from the faculty of agriculture, 10 were studying home economics, and the rest were from other faculties. Twenty-two participants specialized in biochemistry, 17 in chemistry and zoology, 15 in biophysics, 13 in chemistry and microbiology, and the rest were from other disciplines role (Fig 2, 3, 4).

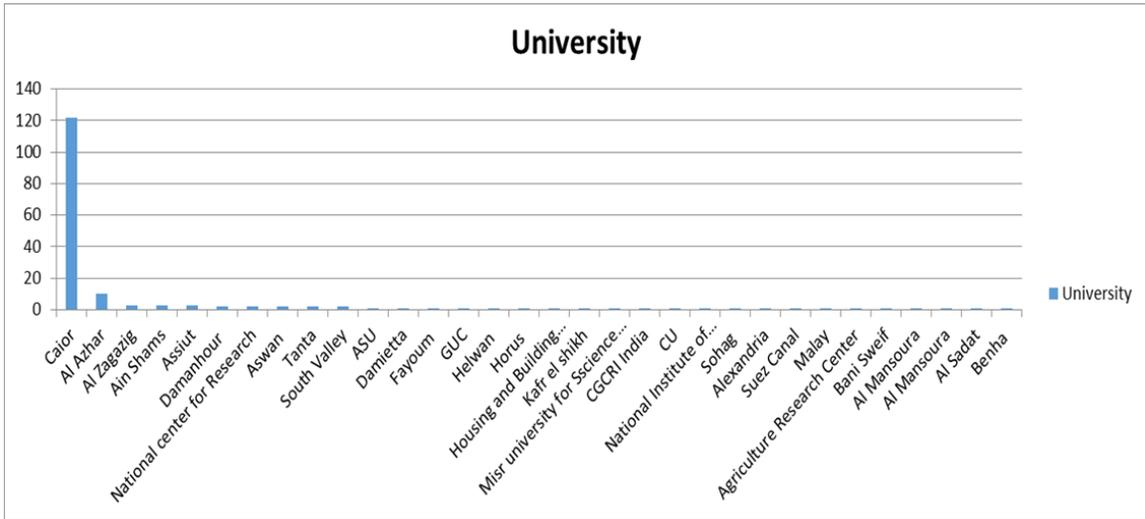


Figure 2. Participating Universities in survey

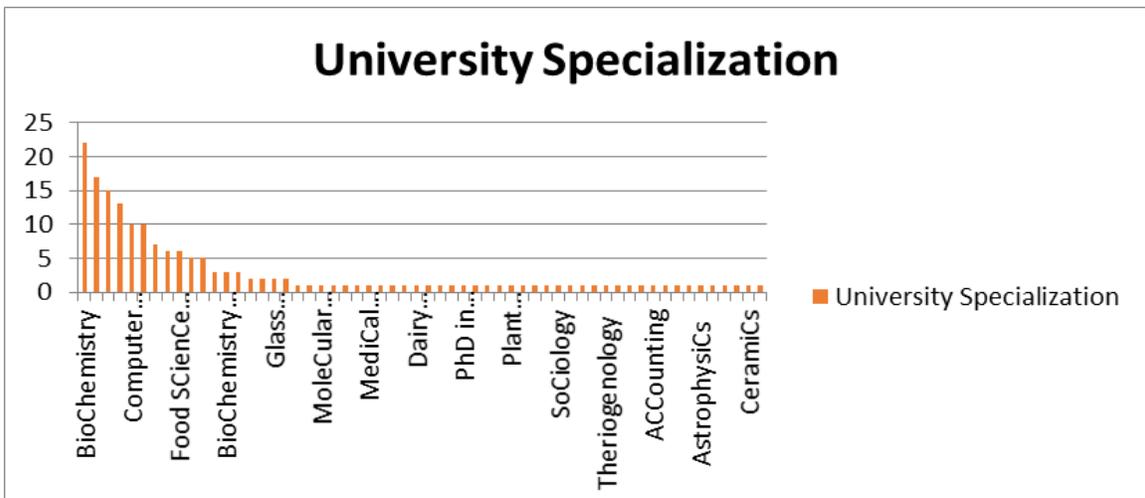
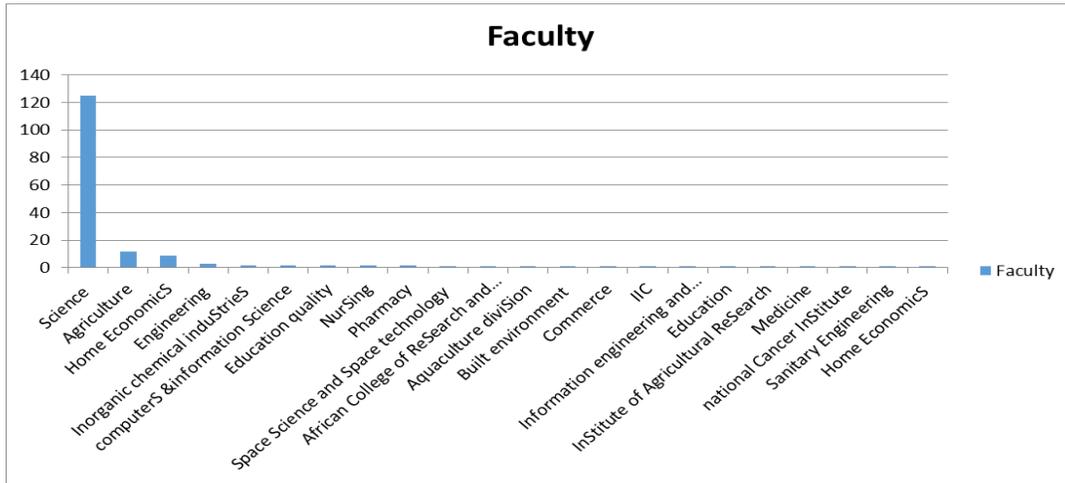


Figure 3. Participating survey University Specialization



**Figure 4.** Participating survey Faculty Specialization

**By analysis of survey, the results showed the following:**

1. Of the 173 participants, 54 (31%) were familiar with the foresight concept, while 119 (69%) participants have never heard it before.
2. Ninety-seven participants (56%) agreed that foresight aims at spotting alternatives to the targeted future, 5 (3%) disagreed, and 71 (41%) were not sure.
3. One hundred sixteen participants (91%) agreed the university leadership is concerned about foresight to achieve Egypt Vision of 2030, while 11 (9%) disagreed.
4. Eighty-nine participants (83%) agreed the university leadership is concerned about foresight to address transformations created by trade, while 18 participants (9%) disagreed.
5. Thirty-five participants (20%) knew that the university encompasses a department or a project team responsible for FF, 33 (19%) disagreed, and 105 participants (61%) were not sure.
6. Fifty-five participants (79%) knew that the university developed a method to enhance trade technologies and the human capital capabilities for the Egypt Vision of 2030, while 16 (20%) disagreed.
7. Sixty-one participants (67%) agreed that the university provides coaching in foresight to its leaders and workers, while 30 (33%) disagreed. Sixty-one participants (35%) agreed that the university has a clear policy to build a network of foresight specialists, while 30 (17%) disagreed.
8. One hundred twenty-five participants (72%) agreed that foresight starts from leaders and experts and then is enforced through a systematic process in the university, while 5 (28%) disagreed.
9. One hundred thirty-six participants (79%) agreed that successful foresight identifies and exploits new future opportunities by investing in the experience of specialists, decision-makers, and business house owners, 5 (3%) disagreed, and 31 (18%) were not sure.
10. One hundred twenty-five participants (72%) agreed that the university encompasses a department or an individual responsible for quality assurance, 5 (3%) disagreed, and 42 (24%) were not sure.
11. One hundred thirteen participants (65%) agreed that the university has an associate degree ISO-certified management system, 5 (3%) disagreed, and 51 (29%) were not sure.

12. Ninety-nine participants (57%) agreed that the university encompasses a strategic arrangement in line with the 2030 Egypt Vision, 9 (5%) disagreed, and 65(37%) were not sure.
13. One hundred sixty-four participants (94%) supported determining foresight departments or centres in Egyptian universities, while 9 (5%) disagreed.
14. Thirty-one participants (65%) knew that the university encompasses a department or an individual responsible for foresight, 30(3%) disagreed, and 112(29%) were not sure.
15. Twenty-two participants knew that their university had performed a foresight study before, 21 stated their university has not, and 110 were unsure.
16. Twenty-six participants have attended courses on future foresight before, while 147 have not.

**Table 1.** The list of survey questions and answers

<b>Statements and Questions</b>	<b>Yes</b>	<b>No</b>	<b>I do not know</b>
<b>1. Have you ever heard of the concept of foresight?</b>	<b>54</b>	<b>119</b>	<b>0</b>
<b>2. The objective of foresight is to spot the alternatives of a targeted future.</b>	<b>97</b>	<b>5</b>	<b>71</b>
<b>3. The University's leadership regarding worries is bothered about foresight to attain the goals of the 2030 Egypt Vision</b>	<b>116</b>	<b>11</b>	<b>46</b>
<b>4. The University's leadership regarding worries is bothered about foresight to address transformations created by trade.</b>	<b>89</b>	<b>18</b>	<b>66</b>
<b>5. The University encompasses a department or experts liable for foresight</b>	<b>35</b>	<b>33</b>	<b>105</b>
<b>6. The University developed a method to make human capital capabilities needed by the 2030 Egypt Vision and also the trade technologies</b>	<b>59</b>	<b>16</b>	<b>98</b>
<b>7. The University provides coaching to its leadership and workers in areas of foresight.</b>	<b>61</b>	<b>30</b>	<b>82</b>
<b>8. The University developed a method to draw in competencies within foresight and futures studies.</b>	<b>55</b>	<b>16</b>	<b>102</b>
<b>9. the university may develop a clear policy to form a network of foresight specialists.</b>	<b>39</b>	<b>22</b>	<b>112</b>
<b>10. Foresight starts from people (Leadership and experts) and will be enforced through systematic processes within the university.</b>	<b>125</b>	<b>5</b>	<b>43</b>
<b>11. Successful foresight identifies and exploits new future opportunities by investing in the experience of specialists, decision-makers, and business owners.</b>	<b>136</b>	<b>5</b>	<b>31</b>
<b>12. The university encompasses a department or an individual liable for quality.</b>	<b>125</b>	<b>6</b>	<b>42</b>
<b>13. The university has an associate degree ISO-certified management system.</b>	<b>113</b>	<b>9</b>	<b>51</b>
<b>14. The university encompasses a strategic arrangement in line with the 2030 Egypt Vision.</b>	<b>99</b>	<b>9</b>	<b>65</b>
<b>15. Does one support the choice to determine foresight departments or centres in Egyptian universities?</b>	<b>164</b>	<b>9</b>	<b>0</b>
<b>16. The university encompasses a department or an individual liable for foresight.</b>	<b>31</b>	<b>30</b>	<b>112</b>
<b>17. Did your university perform a foresight study previously?</b>	<b>22</b>	<b>41</b>	<b>110</b>
<b>18. Have you ever attended any courses on future foresight?</b>	<b>26</b>	<b>147</b>	<b>0</b>

#### **4. Conclusions and Recommendations**

Social foresight is vital, and, as indicated previously, new programmes are readily available to provide an FF approach by applying future skills. The following activities are recommended if the education sector is to become a strong and central role in the establishment of social foresight:

1. Universities already active in FF must become leaders in the mentorship of others, strengthen their learning and aid others. A determined university leadership could do this.
2. The outstanding work previously shown in universities during this study needs to be broadly promoted through a conference on "Futures in education" wherever FF practitioners present their work.
3. The construction of national and qualified FF bodies shaped by existing competent organizations would alter current skills learning through journals, conferences, networking and professional growth and so on.
4. Collaboration between institutions and the local community could effectively make students feel hopeful and committed to their future.

The creation of social foresight was the guiding framework for this endeavour. It is quite obvious that education plays an important role in this through a thorough FF approach. By incorporating Future thinking, tools, concepts and language into the thinking pattern of students and teachers, present and future generations, powerful thinking and development tools are provided to imagine, create, and understand the future in ways to free up the imagination of what is possible and worthwhile to work towards. It fights and provides alternatives to the reduction of the collective imagination. Often this is the ideal of social prospects.

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