

Awareness of QR Code and Extremophilic Microorganisms Among the Scholars of Quetta City

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Objectives: To know the level of awareness in people about different aspects of extremophiles microorganisms; and use of smart phone app QR code reader.

Location of study: Study was conducted in November, 2015 at Institute of Biochemistry at UOB, Quetta.

Methodology: A total no. of 63 attendants were included in the study. Relevant information was collected through nominal scale questionnaires. For this purpose, a one-day workshop was organized and educated audience of the city were invited for this purpose, who were asked the concerned questions through a Performa.

Result: Among the attendants, 41 females and 22 males were acquainted with the use of smart phones, despite the fact of they possessed negligible information regarding the mobile app QR code reader with partial knowledge about extremophiles' microorganisms. The mode age of participants were 35 years and most of them were directly related to biological field with 21 years of education. Unwanted attention towards the smartphone and itching to get in touch with more people was observed.

Conclusions: We conclude from the above study that there is a partial awareness among the educated community about QR code and extremophiles' microorganisms. They all have access to media and use smartphones. Most of them did not scan QR codes present on various products. There is an urgent need for promoting awareness about extremophiles' microorganisms and how to use QR app in our society.

Keywords: Higher Learning Scholars, Publicity Survey, Pilot Cross Sectional Study, Quetta.

1. Introduction

Awareness assessment provides critical information, needed in the development of new and how to make a product popular and potential product features. The success of any nation depends upon their concern in development of their education sector. Today's educational Institutions impart knowledge based on mugging and are mostly theoretical. They are not designed to prepare pupils for gaining practical knowledge that can be applied in our everyday life. Industry has always welcomed new, up to date and according to need curriculum that will convert ordinary level pupil to a skilled worker. Nations prepare their future to compete in industrial revolution era.

In this contemporary world, smartphones are playing an imperative role in people's lives. With the advancement in smart phone technology, humans now heavily depend on them due to the many advantages they offer. One of the facility being offered by the smartphones is the QR reader. The easy to scan QR code [Quick response code] application is available which is able to scan the embedded information. QR became an easy tool and important strategy of advertisement. Referential studies are available which tells us the impact of smartphones on the lives of students and society (Marwari and T. R. Soomro, 2013). In advanced countries, QR code is printed on visiting cards, passports, which provides an easy way to access website addresses, contact numbers, more quickly than by entering manually and helps in reminding a person for events and concerned information (S. Ertekin& L. E. Pelton, 2014). NADRA Pakistan, the issuing authority of National ID Card has started ID cards with QR Code. The Driving License Authority of Quetta has embedded QR Code in their Computerized Driving Card. It is an indication of advancement and marketing, and many studies are available in this regard (BiLLiCH, 2010, Dou, x., and H. Li, 2008). To know whether this is the right way to use it for advertisement and its feasibility in Balochistan, a blind survey among the most educated people of the city in 2015 was conducted.

The second goal of this study is to judge their previous knowledge about microorganisms in general and extremophiles' microorganisms in particular. Extremophile microorganisms can survive in extreme physical conditions such as extremes of pH, temperatures, pressures, water activity etc. (Ali I *et al*,2015). These microorganisms are blessed with special mechanisms through special metabolites by which they can survive in these harsh conditions (Ali I *et al*,2014). These special metabolites have mostly been found being polyextremophiles being able to work in more than one extremes of available conditions. The polyextremophilic characteristics are making these metabolites the perfect candidates to be applied in biotech industries where work at extreme conditions are required. Current climatic change is also making these microbes important as harsh conditions may propel us to investigate how these microbes adjust themselves (Ali I *et al* ,2014B). Harsh weather and environmental conditions of Baluchistan, makes it an ideal location. Balochistan is having various extreme sites, ranging to extreme summers to severe winter. Here are many unexplored extreme sites that are expected to provide thermophiles, acido/alkalophilic, xerophilic and halophile microorganisms where extremophiles' organisms thrive their presence. We asked the participants how they will utilize these microbes in biotech industries. For this purpose, there is a need of survey, and, on the basis of results obtained from the survey, a research unit of biotechnology from extremophiles' microorganisms (RUBEM) will be established.

1. Methodology

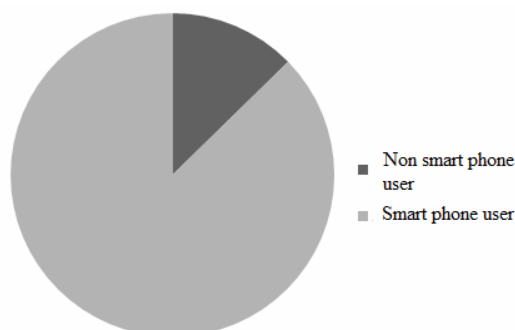
The current study was conducted at an institute of Balochistan. The respondent's education level is mentioned in table1.A with a total of 63 attendants were included in the study. Relevant information was obtained through a proper questionnaire. For this purpose, a one-day workshop was also organized. Their attention towards mobile phones was monitored through a hidden cam.

3. Result:

3.1 Table 1. Show the education standard.

Education in years (n=63)	No. of respondent	Percentage
16 years	19	31%
18 years	21	34%
21 years	22	35%

3.2 Fig 1. Show the percentage of smartphone use among attendants.



From fig 1 it is clear that 87% of the participants use smartphones, but the non-smart phone users are only 13%, but all participants use mobile phones.

3.3 Fig 2. Gender wise ratio of participants.

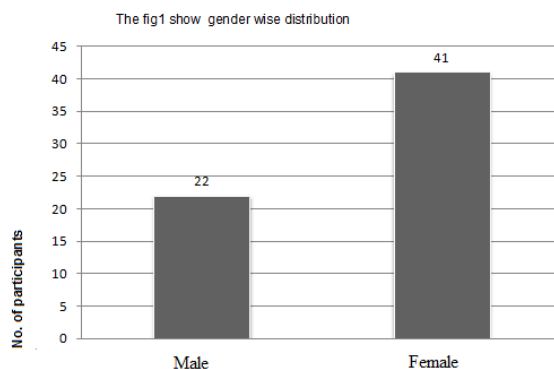
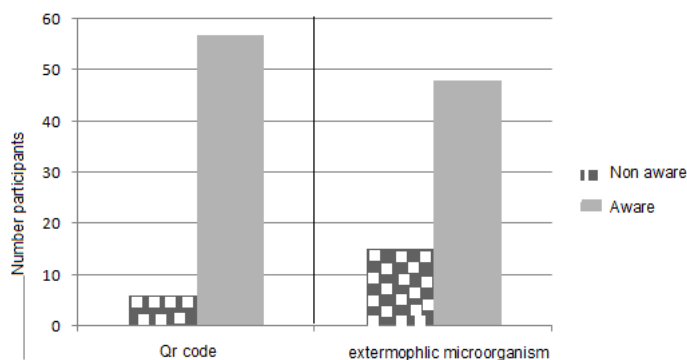


Fig 2 shows that the proportion of females attending the workshop was greater as compared to males, On Y-axis no of participants, X-axis shows the gender.

3.4 Awareness



The fig.3 Awareness. Right side extermophile microorganism, Lt Side QR code.

3.5 Hidden cam results

It was observed with the spy cam in workshop that the participants saw their smartphone 40 times, received incoming calls 20 times and read SMS 18 times. The duration of workshop was 2hrs and a 30-min break was observed. After this a 2hr discussion was also conducted. Attention towards seeing a smartphone at regular intervals means to keep in touch with people at regular intervals.



Fig

4. Hidden cam footage.

As seen easily 3 scholar's intention towards their smart phones during lecture.

4. DISCUSSION

Primary goal of the study was to document the level of awareness. In our study most of the respondents were females as mentioned in fig 2.A. The table 1 tell us that the current study was carried out on highly educated scholars of the province, which meant the study reflects the scholars' response and indirectly tells us about their socio-economic status, too. Fig 3 showed that out of 63 participants 24% (n=15) were aware about microorganisms, their screening method and use in the industry. Amongst 24% only 6 participants were fully aware about extremophile microorganisms. It is further added that most of participants had studied biology as a major subject.

The secondary evaluation about smart phone application is that only 10% (n= 6) were aware about QR reader application, however, did not scan any code till this survey; and no application was installed related to QR code in their smartphones. It meant that QR code publicity for educated people is not a feasible idea at this time, till it becomes more popular, the need of motivation will remain for this till then. Majority of the participants were below 35 years of age, so they are easily familiar with the advancement of technology especially in tablets and mobile phones. It is possible that every student regardless of whether he/she is pursuing graduate studies, masters, doctoral or short courses provided by University, owns or is about to own the smart phone due to either mob psychology or educational requirements (this means some class representatives prefer to send announcements from lecturer in charge of the course through electronic gadgets)

5. Conclusion

The study shows that smartphones put a huge influence on human behavior (KohTeng Chun,2011) The QR code on the flyer, banner shows the contemporary approach of organizers and companies. However, in Balochistan this is not advertising campaigns feasible idea. Biology background scholars of the capital city did not have a vast knowledge about extremophiles' organisms. This pilot survey result tells there is a need to modify curriculum according to the era. And, to utilize the hidden properties of microbe in development of biomedical needs of humans.

Acknowledgement:

I would like to thank Director Dr. M. Anwar, Casvab, Pcst & V.C University of Balochistan, Quetta for providing support to conduct workshop for current study and would also like to thank the volunteers who became a part of the study.

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