

# Technology Readiness Index (TRI) among USM Distance Education Students According to Age

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**Abstract**—This paper reports the findings of a research conducted to evaluate the ownership and usage of technology devices within Distance Education students' according to their age. This research involved 45 Distance Education students from USM Universiti Sains Malaysia (DEUSM) as its respondents. Data was collected through questionnaire that had been developed by the researchers based on some literature review. The data was analyzed to find out the frequencies of respondents' agreements towards ownership of technology devices and the use of technology devices. The findings show that all respondents own mobile phone and majority of them reveal that they use mobile on regular basis. The student in the age 30-39 has the highest ownership of the technology devices.

**Keywords**—technology devices, mobile phone, distance learners, techno readiness Index, Age

## I. INTRODUCTION

**D**ISTANCE Learning Readiness was defined as the degree to which an individual or institution is prepared, willing and has the capacity to participate in the digital world of education [1]. The history of data collection on assistive technology devices in the National Health Interview Survey (NHIS) reflects the long – standing interest in the topic in the health care and disability communities. Assistive technology consists of devices and other solutions that assist people.

The rapidly evolving technological developments have affected the nature of mobile phone and TV, as the TV is no longer a set of pushed schedule of programs; instead, viewers select channels at his or her own discretion. The mobile phone has transcended from a simple technological object into functioning “Swiss army knife” of media devices supplying different technological functions for specific phone –based capabilities, ranging from internet access, MP3 Player, SMS, camera, video to email, all of which fuels the consumers'

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demand for immediacy and connectivity. This has been further encouraged by Web2.0 led mobile phone usage .i.e. accessing blogs downloading UGC [2].this has led to the advancement of ubiquitous social paradigm, which includes the developmental stages of wireless applications support , such as RFID, IP TV and Wipro The diversification and ubiquity of mobile TV phone services are being adapted to cater to the consumer's needs and their ever changing media consuming habits Consequently, diversification fuels personalization as the market becomes more sophisticated, seeking greater interactivity. The emerging innovative services to consumer offer personalized and time shifted content of high value [3],[4].

Currently, distance learning has grown into a higher education industry and has become one of the main pathways to global education [5]. Alexander and Blight [6] stated that “the combination of information technologies and telecommunications has meant that world events are no longer localized, but spread around the world within a split second via technologies...For those with access to these technologies, the global village has arrived” (p. 20). Allen and Presnal [7] asserted that technology is used in education because it could improve access to education. It reduces cost/increase efficiency, improves quality, provides “on demand” or “just in time” learning, and allows a learner centered approach. If information and communication technologies are used effectively, Sachs [8] stated that they could help create a trained, educated and healthy workforce capable of building a vibrant and successful economy. The value of a network increases as its number of users grows. By participating in the global information network, developing nations not only add value to the rest of the world, but also benefit from the ability to use the network to communicate and trade with all other users. For this reason, he proposes that it becomes ever more important for the developing world to get ready for the networked world. Their participation in the networked world could provide new ways for developing countries to improve their economic, social, and political wellbeing.

The bridges.org [9] document stated that “E-readiness assessments are a valuable tool with which to gain more informed, region-specific understanding and to develop an action plan” (p.4).A challenge for cross-cultural assessment is to construction inventory suited to the local needs while retaining the standards of validity and reliability expected of established assessment instruments [10].Readiness is not merely to be ready to get involved in a distance learning

venture, but also about the expectations of the institutions for the distance learning projects. Readiness assessment could give information about skills, strengths, weaknesses, opportunities, and threats (SWOT analysis), and special needs [11].

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In a study conducted by the Masie Center [12] with U.S. participants, it was found that the amount of support project participants received actually increased their willingness to begin the technology-delivered portions. The level to which participants felt they were supported was one of the primary indicators regarding their participation in e-learning. Also research indicates that an instructor's motivating style is an important educational construct [13] ,[14] because it affects students' developmental and academic outcomes [15],[16] ,[17].

Carrasco, Fuentes-Berain, and Martínez [11] stated: Society in Latin America is an allegory of duality. Although high-end consumers are in the minority, their demographics are more encouraging (they are younger and have larger families) than their peers in developed countries. Whereas moderately low-income and very low-income urban citizens, 88 percent of whom are literate, are poor by international standards, but they are also hungry for unconventional ways of becoming networked ready .

## II. METHOD

A total of 190 questionnaires were distributed to School of Distance Education University Sains Malaysia (USM) student (DEUSM) from, Management programme, Sciences, Arts and Social Sciences ranging in age from 20 to above 50. The ethnic make-up consisted of Malays (57.1%), Chinese (25.7%) and Indian (10.5%) and 6.7% claimed they were indigenous. All of them affirmed that they have or owned mobile phones. The data was collected using simple random sample through secondary data based on the online databases and past researcher's studies. The questionnaires were administered by distance education lecturers in this school and were completed by the students during new student's registration day.

## III. RESULTS AND DISCUSSION

Once the data was collected, the data was coded and analyzed using descriptive statistic to determine the

percentage of the respondents towards the priority in using the technology devices. As seen in Table (1)The results show that 57.8% of the respondents owned normal/desktop computer,84.4% Laptop computer, 100% Mobile Phone,40% MP3 player / MP4 player, 82.2% TV, 84.4% Radio, 60.0% Digital camera 6.7% Video game console (e.g. PlayStation, Xbox, ...),4.4% Handheld gaming device (E.g. Nintendo, PSP).

The results show that the entire respondent owned mobile. Students benefit from the innovative ways that we can utilize technology the educational transaction processes. The mobile phone holds the only distinction of a media or tool has become part of the student. Provided the battery is sufficiently charged [18] Among numerous choices mobile technology provides for education, instant messaging is one of the most widely spread applications. Some educational experiments have been carried out in this area. SMS were sent to students to inform of their schedule, changes in it, examination dates, places, marks, etc. [19] or were used to guide, prompt and support the students in learning [20]. A survey in Norway also showed that students considered SMS as a proper tool for spreading information about lectures, schedule, etc. [21] The findings were generally positive. However, most of the implemented messaging systems were not directly for learning, but for managing learning activities.

TABLE I  
THE OWNERSHIP OF TECHNOLOGY DEVICES

Device	Frequency	Percent	Valid Percent	Cumulative Percent
Desktop computer	26	57.8	57.8	57.8
Laptop computer	38	84.4	84.4	84.4
Mobile Phone	45	100.0	100.0	100.0
MP3 / MP4 player	18	40.0	40.0	40.0
TV	37	82.2	82.2	82.2
Radio	38	84.4	84.4	84.4
Digital camera	27	60.0	60.0	60.0
Video game	3	6.7	6.7	6.7
Handheld gaming device	2	4.4	4.4	4.4

The data in Figure (1) shows that all the respondent Higher property for Mobile Phone , Radio and Laptop computer, TV, Digital camera, Desktop' computer , MP3 player / MP4 player and the lowest property for Handheld gaming device (E.g. Nintendo, PSP...)and Video game console (e.g. PlayStation, Xbox, ...)

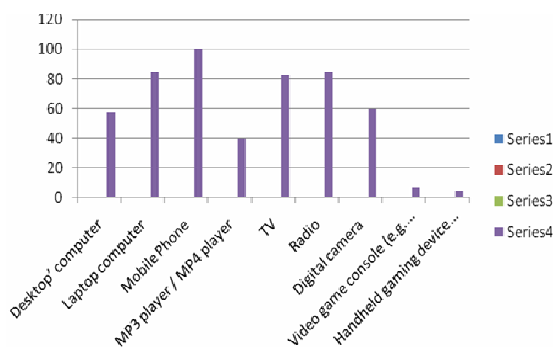


Fig. 1 The ownership of technology devices

As seen in Table (2) the results show that the respondents from the age (20-29) owned 23.1% normal Desktop 31.6% Laptop 37.8% Mobile 38.9% Mp3 40.5% TV 36.8% Radio 33.3% Camera and no one of them had Handheld gaming device. the respondents from the age (30-39) owned 46.2% normal Desktop 44.7% Laptop 42.2% Mobile 38.9% Mp3 40.5% TV 42.1% Radio 44.4% Camera 66.7% Handheld gaming device. The age (40-49) owned 26.9% normal Desktop 21.1% Laptop 17.8% Mobile 22.2% Mp3 18.9% TV 18.4% Radio 18.4% Camera and 33.3% Handheld gaming device. The age of (50-above) owned 3.8% normal Desktop 2.6% Laptop 2.2% Mobile 2.6% Radio and no one of them had Mp3, TV, Camera or Handheld gaming device.

TABLE II  
THE OWNERSHIP OF TECHNOLOGY DEVICES

Age	20-29	30-39	40-49	50-above
Desktop	23.1%	46.2%	26.9%	3.8%
Laptop	31.6%	44.7%	21.1%	2.6%
Mobile	37.8%	42.2%	17.8%	2.2%
Mp3	38.9%	38.9%	22.2%	.0%
TV	40.5%	40.5%	18.9%	.0%
Radio	36.8%	42.1%	18.4%	2.6%
Camera	33.3%	44.4%	18.4%	.0%
Handheld gaming device	.0%	66.7%	33.3%	.0%

The results show that the most of the respondent in age from (30-39) owned the highest amount of the technology devices. and the respondent in age from (50-above) owned the lowest amount of the technology devices. The technology readiness index (TRI) is a framework that relates to technology in general. The traits differ among people and therefore their beliefs about various aspects of technology differ. The relative strength of each trait indicates a person's openness to technology. TRI thus reflects a set of beliefs about technology but is not an indicator of a person's competence in using it.

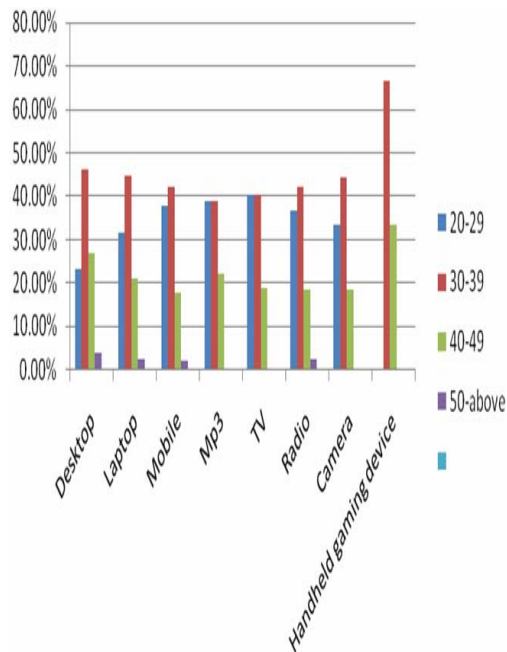


Fig. 2 The ownership of technology devices according to the respondent age

The data in Figure (2) shows that the respondent higher property for technology devices was in the stage (30-39) in the stage (20-29), then the stage (40-49) and the lowest in the stage of (50-above) the respondent didn't have any of MP3 / MP4 player, TV, Camera and Handheld gaming device (E.g. Nintendo, PSP...).

Following traditional Internet communication, mobile communication is recently emerging in the field of education. Compared with computer mediated communication, the high penetration rate of mobile devices and high popularity among the youth [22] lend mobile communication superior advantages when approaching young students.

#### IV. CONCLUSION

There is an increase use of wireless technologies in education all over the world. In fact, wireless technologies such as laptop computers, palmtop computers and mobile phones are revolutionizing education and transforming the traditional classroom-based learning and teaching into anytime and anywhere education. Following traditional Internet communication, mobile communication is recently emerging in the field of education. Compared with computer mediated communication, the high penetration rate of mobile devices and high popularity among the youth. lend mobile communication superior advantages when approaching young students. When the media are used to augment rather than substitute face-to-face communication, lean media can be more desired, since they reduce socio-emotional cues and thus reduce pressure upon people. People can express themselves with less inhibition, and act more like themselves. It is found

that media low in richness with an asynchronous nature reduce pressure for people to respond immediately and need to ingratiate [23]. This global now looks like small village before and to reach any where you need to own the object to be where ever you want to be especially when you have the strength and money.

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