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The public evaluation of the buildings' façade representing the historical images in Omar Al-Mukhtar Street, Tripoli City.

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Abstract

The objective of this paper is investigate the public's evaluation of the buildings' façade representing the historical images. The case study was conducted at Omar Al-Mukhtar Street, Tripoli, which to achieve the objectiveof the study, questionnaire survey was distributed and administered to collect data. The results of this study revealed that people hold certain criteria when evaluating the historical image of the districts and this has implications on designers and planners as to how to go about developing architectural designs. Generally for future reference, the buildings have to be developed and accentuated based on the people's opinions to enhance the historical images façade in districts.
Keywords: Visual elements; Historical building façades; Architectural style; Architectural elements.

ملخص البحث

الهدف من هذه الورقة هو التحقيق في تقييم الجمهور لواجهة المباني الت يتمثل الصور التاريخية .تم إجراء دراسة في شارع عمر المختار، طرابلس وتم تحقيق هدف الدراسة بتوزيع الاستبيان لجمع البيانات. وكشفت نتائج هذه الدراسة أن الناس لديهم معايير معينة عند تقييم الصورة التاريخية في الأحياء وهذا له آثار على المصممين والمخططي نحو لكيفية الشروع في تطوير التصاميم المعمارية بشكل عامل لرجوع إليها في المستقبل، يجب تطوير المباني وإبرازه ابناءً على آراء الناس لتحسين واجهة الصور التاريخية في الأحياء.

الكلمات المفتاحية: الصورة التاريخية؛ واجهات المباني التاريخية. الطراز المعماري؛ العناصر المعمارية.

1. Introduction

At the present time, the city's image, particularly a strong prominence on building's facades has received extensive consideration when a city is renovated and developed. It appears that the city imageries are categorized based on public's assessment as poor images or rich images and reliant on graphic architectural and city features in constructing facades. Libyan cities' buildings' facades, particularly in historic areas, possess personal distinct trait in design variability, form, material and feature that would be appropriate to be included in Omar Al Mukhtar Street, Tripoli city's historic area. Based on public assessment, the study attempted to elucidate the architectural and urban elements which impact the city's appearance. Preceding studies in facades' construction landscapes and city imagery were utilized in distinguishing the way and the measurement of public assessment used questionnaire and investigated quantitatively. The result revealed that design, architectural style, colour and shape are assessed as significant elements in city image's characteristic and it should be given heavy consideration in future growth and historic area renovation.

2. Statement of Problem

Building façade, as an important element in a historical district, plays an impressionable role in presenting the historical image. This is a subsequent result of Lynch's theory on city image in 1960, which introduces district as one of the effective elements of a city's image.

Various studies by (Warfelli 1976), (Gulick 1963), (Azlitni 2009),and (El-Allous 2016) have stressed on the weakness of urban architectural image of districts and most urban centres in Tripoli city, which might have implicitly alluded to the inappropriate historical image of the study area as well.

Considering the results of the previous studies, the problem pursued in this study is that inconsistency of shapes, colours, decorations, and architectural styles has caused most of the facades not to have strong historical images. (Abubrig),(Azlitni 2009),(El-Allous 2016)and (Deeb 2007)also stressed on the lack of harmony and inappropriate juxtaposition of buildings in the old city centre, which is in contrast with the objectives of the Tripoli Structure Plan 2030 to create strong images for the districts of Tripoli city. In fact, this issue verifies the problem statement of the study. Based on the problem mentioned, as well as to find out the visual elements of the

building facades and urban elements which contribute to the enhancement of the historical building facades images in the study area,

To have a descriptive outline of the problem statement, Figures 1, 2 and 3 portrayed the absence of harmony in the building facades (elements) in the study area.

Figure 1 Lack of Harmony in the Elements of the Building Facades.

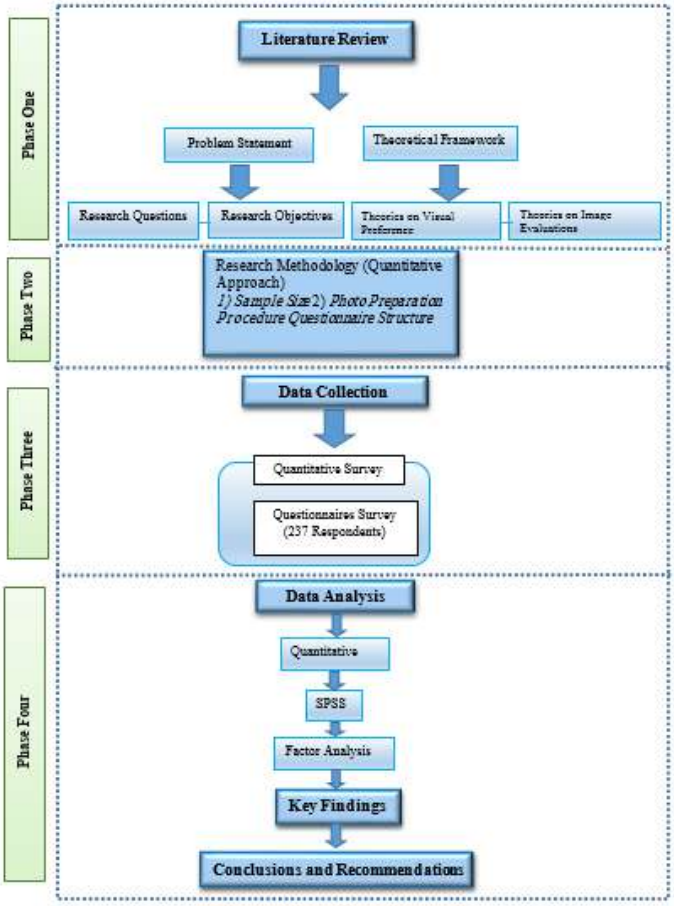
Figure 2 Harmony in the Colours and the Elements of the Building Facades (in the 1960s.)

Figure 3 Lack of Harmony in the Colours of the Building Facades.

3. Methodology

This study used quantitative methodology to examine the public's evaluation of the historical buildings façade. In (Briggs, A., Morrison, M., & Coleman, M. (2012)).study, a quantitative method is justified in its use in scientific elicitation of phenomenon and their relationship with the help of numerical data. Through this method, the study's outcome can be generalizable over a considerable population size (Balding, D. J. (2006)). A quantitative study provides the correlation between the historical buildings' façade, identifies both strong and poor image, and the visual components of the façade as well as urban elements.

4. framework



5. Results and Discussions

The study findings obtained from the evaluations of the historical street facades of Omar Al-Mukhtar are presented in this chapter. For easy understanding and presentation of results.

5.1. Analysis of the Evaluation of the Historical Facades

This study considered building facades as areas of evaluation areas, similar to past studies (Askari &Dola, 2009) ;(De Groot, J. I. (2019). The evaluation is categorized into two with the criterion being the level of façade representativeness of the historical images. Stated clearly, the historical images were evaluated based on their robust facades. Accordingly, the facades were organized on the basis of their mean scores and by so doing, the top and the bottom facades based on obtained scores were determined(Kaplan, 1979). In this regard, five facades obtained the top means and were considered too strongly represent the historical images of the area, while the five facades that obtained the lowest means were considered to poorly represent the historical images. The results are consistent with achieving the first and second study objectives.

5.1.1. The Historical Facades with the Highest Means

Following the evaluation of the facades, the scores were ranked in an ascending manner based on their means and standard deviations (see Figure 4). The facades that obtained the highest means were, as mentioned, assumed to significantly represent the historical and architectural images of the area under study. Following the identification of the strength of the facades, the researcher extracted the characteristics of the facades that had a role in the evaluations. This was done by explaining the façade contents (elements and characteristics) as well as the spatial qualities with the help of content analysis. Therefore, the elements, characteristics and spatial qualities of the facades were obtained, explained and a conclusion was reached. The results of the characteristics of the historical buildings facades are listed in Table 1.

Scene 50Scene 36Scene 28

Scene 20Scene 8

Figure 4Historical Facades with the Highest Means

Table 1. The Characteristics of the Historical Facades with the Highest Means

Communal Elements or Characteristics	Communal Spatial Qualities
1) Use of ottoman arches 2) Use of column in design 3) Cleanliness in designing elements 4) Use of brick and concrete and clay 5) Use of round arched window	Legibility, repetition, coherence of the elements.

The results showed that the five images that obtained the top mean scores were numbers 50 (4.56), 20 (4.53), 36 (4.50), 8 (4.42) and 28 (4.13). The façade contents analysis led to the investigation of the façade elements, characteristics and spatial qualities – all these contributed to the evaluations. More specifically, it was found that the use of Ottoman arches, column design, cleanliness in the design elements, use of brick and concrete and clay, use of round arched windows all contributed to the historical representativeness of the façade. The results of the evaluation of spatial qualities and characteristics of the facades showed that legibility, repetition and coherence of elements are significant factors that impacted the evaluations of the historical facades.

Frewald (1989) asserted that the introduction of columns and arches is important in adding richness to the façade. In prior studies (Nasar, 1983; Stamps III, 1999; Askari &Dola, 2009; Jalali et al., 2012; El-Allous, 2016; Santosa, H., Ikaruga, S., & Kobayashi, T. (2013)), the authors reported that façade constructed from bricks may also be deemed as representing historical images of the area.

In addition, cleanliness may be considered to add to the visual richness and quality of the façade presented in historical images as consistent with the findings reported by Nasar (1983), Stamps III (1999) Varying characteristics demonstrate the historical façade consistency to another influential theme of evaluation. This was supported by Gjerde (2011) and Hine et al. (2000), indicating that the more historical façade reflect the historical roots of the traditional façade, the more they will be appropriate as representatives of historical images of the area under study.

This notion also reflects Purcell and Nasar's (1992) and Gjerde's (2011) claim on prototypic façade. In their studies concerning spatial qualities and characteristics, they found that legibility, coherence, and harmonious repetition of the elements comprise the significant factors influencing historical façade evaluations. The façade, possessing the qualities represent a more historical image of the area. Some prior studies stressed on the following qualities; legibility like in Kaplan et al. (1982), Herzog (1989), Kaplan and Kaplan (1989), Stamps (2004) and coherence like in Kaplan et al. (1982), Herzog (1989), Kaplan and Kaplan (1989), Stamps (2004), Gjerde (2010). The authors claimed that such qualities predict the priority of façade. Contrastingly, in other studies (Wohlwill, 1976; Santosa, H., Ikaruga, S., & Kobayashi, T. (2013), intermediate degree of complexity was mentioned as another

predictor but with lesser importance. Consistent with Kaplan and Kaplan (1982; 1989), complexity, both with order and without order is a predictor, and this study included the former.

On the basis of the results, mysteriousness was examined and found not to have any significance in evaluating historical façade although it has been evidenced to be in prior studies (e.g., Kaplan et al., 1982; Herzog, 1989; Kaplan & Kaplan, 1989; Nasar, 1994; Howley, 2011; Stamps, 2004; Pazhouhanfar& Kamal, 2014; Ikemi, 2005; Askari &Dola, 2009; Jalali et al., 2012). On the whole, the significance of legibility and coherence as spatial evaluation qualities lies in the fact that the former makes historical façade readable and memorable, whereas the latter makes the façade elements organized and in order.

5.1.2. The Historical Facades with the Lowest Means

Aside from the elements and characteristics role in contributing to the historical facades quality, based on which the historical facades with the highest means were discerned, those with the lowest means were also identified based on public evaluations. This was done to help complete and comply with the first and second objectives of the study. To do so, the historical facades with the lowest mean scores were identified, just as explained in the previous section. Furthermore, the characteristics and spatial qualities which negatively influence the historical images of the facades were also elicited. The results highlighted the characteristics and spatial qualities that adversely affected the façades of the historical images as listed in Tables 2 and Figure 5.

Scene 17Scene 10Scene 24

Scene 29Scene 34

Figure 5 Historical Facades with the Lowest Means

Table 2. The Characteristics of the Historical Facades with the Lowest Means

Communal Elements or Characteristics	Communal Spatial Qualities
1) Lack of ornament and details 2) Use of incompatible elements and shapes 3) Use of inharmonious colours, shapes and elements	Repetition, simplicity, chaos

Based on the mean scores obtained, the facades with the least scores included historical image 17 (2.36), 29 (2.34), 34 (2.10) and 24 (1.89). This connotes that the above facades poorly represent the historical images in the area of study. The factors that contributed to the low scores including incompatibility of shapes, lack of ornaments and details negatively contributed to the images of the historical buildings.

On the basis of spatial qualities and characteristics, the incompatible juxtaposition of elements, referred to as chaos, and the repetition of elements, referred to as simplicity or visual monotony are important factors that contributed to the low mean scores of the historical facades as they poorly represent the facades.

The researcher presented the analysis of the public's evaluation of the historical image facades and their relationship with the architectural elements and urban elements of the buildings. The evaluation highlighted some facades that significant represented historical images robustly based on their high means and these include the use of Ottoman arches, use of column in design, cleanliness in designing elements, using brick and concrete and clay, and use of round arched windows. Other

factors like legibility, repetition and coherence were other elements that were also found to be important in their contribution to the quality of historical images façade.

In contrast to the above factors with the highest means, those with the lowest means were considered to represent the historical images in the area in a poor manner. They include lack of ornaments and details and incompatibility of elements, and from the spatial quality point of view, chaos and simplicity obtained the lowest means indicating their degradation of the historical images façade.

The next step involved the determination of the architectural elements and urban elements that affected the historical images facades and the relationship between them with the evaluation of the images. According to the obtained results, use of sculptures, harmony between historical and modern buildings, street furniture (light, pedestrian path design), and traffic (accessibility) were the urban elements that significantly impacted the evaluation of façade. As for the factors, they include building function, traffic, surrounding shops, use of sculptures, distance between buildings and information plaque.

From the viewpoint of architecture, the architectural style of building frontage, the shape of the frontage, decoration of the frontage, material of building frontage, and the color of the frontage were indicated to be the top architectural elements that represent the historical façade of the images. Moreover, the correlation analysis results revealed that building function, traffic, surrounding shop, use of sculptures, distance between buildings and information plaque also had a correlation with the evaluation of historical images.

To summarize, the results of this study revealed that people hold certain criteria when evaluating the historical image of the districts and this has implications on designers and planners as to how to go about developing architectural designs. Generally speaking, for future reference, the buildings have to be developed and accentuated based on the people's opinions to enhance the historical images façade in districts.

6. Conclusion

The results of evaluation also indicated that other elements played a great part in influencing the area's image like ornaments, details, bright-colored material, cleanliness, legibility, coherence and harmonious repetition of elements. These results concur with the results of prior literature (e.g., Herzog et al., 1982; Herzog,

1989; Kaplan & Kaplan, 1989; Stamps III, 2004; Frewald, 1989; Nasar, 1983; Stamps III, 1999; Akalin et al., 2009).

Furthermore, the results showed that architectural style is the top visual element that influences the evaluation of historical buildings façade, while the use of unsuitable or inconsistent colors adversely affects the same. These findings are consistent with those reported by (Nasar, 1989; Stamps III, 1991; Karaman, 2005; Hui, 2007; Swirnoff, 1982). With regards to the results concerning urban elements, street furniture was the top element that had the positive impact on the image of historical façade, and traffic had the highest negative impact on the visual richness and image of the same. These findings highlight the role and significance of urban elements in improving, and sometimes tarnishing the image of the area. This calls for future development in the area to heed the findings concerning urban issues and their influence on the historical buildings' image. To conclude, this study revealed that the public are aware and they care about the historical buildings' façade and the image it portrays. The public should therefore have a hand in assisting urban designers and planners when it comes to the future development or conservation of the historical buildings. The results are expected to help future conservation of historical building façade that is based on professional as well as public perceptions and assessment.

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REVIEW OF MOBILE ACCESSIBILITY TOOLS FOR PEOPLE WITH EYE, HEARING AND HAND DISABILITY

أدوات الوصول عبر الهاتف المحمول للأشخاص الذين يعانون من إعاقة في العين والسمع واليد

اعدت بواسطة

ابراهيم العجيلي على شلفوح
على العجيلي علي شلفوح
مصطفى عبدالله ضؤ ضؤ

كلية العلوم والتقنية / جادو

IBRAHIM ALAJELI ALI SHALFOUH
MOSTAFA ABDULA DOW DOW
ALI ELAJELI ALISHALFOH

ABSTRACT

Information Technology today has not just revolutionized many industries but it has a big impact on individuals' daily life. Technology not just helps individual in their office work, entertainments but also help them to normalize their life. People with disabilities such as hearing, eye and hand are now capable enough to perform their routine tasks easily. Technology has made life easier. Thus, this study sheds lights on mobile accessibility tools for people with such disabilities. The study is based on previous literature and current studies in this domain. The findings of the study are useful for technology practitioners, health ministry, and disable society as well. As concluded based on the study literature there are various applications that can help disable people to use mobile phones easily without any assistant. Such as Google talk is helpful for people with speaking disability. Moreover, some applications with sound technology are also useful for people with eye disability. For hand disable people technology can assist them to write a text by their voice recognition feature. Thus, we can say technology is an essential factor in aspect to bring disable people to normal life.

Keywords*:* Disability, disable people, mobile devices, mobile accessibility tools

INTRODUCTION

People with disabilities meet various barriers in all types. This is however; the technology is helping the people in order to lower many barriers in a hasty manner. By using the computing technology, the technology is very useful for the people with disability. Some of the visually impaired individuals required to undergo the popular mobile accessibility devices to use forever. The software meets successfully that should undergo by giving visual, hearing, dexterity, and hand disability tools (Jamal Mazrui , 2013).

Moreover, there are certain mobile tools are available in order to undergo the disability specific purpose accordingly. Furthermore, the assistive app on the other hand, helps the disability to improve the lives without any hassle. In order to get rid of their barriers, there are huge collections of accessibility tools are available which consists of comfortable options for them (Board, C., 2016).Some of the mobile accessibility devices are giving such valued reasons on picking the popular branded tools for them. In this chapter, it further discuss about the types of tools and how they are used for the disable people who have eye, hearing and hand disability issue (AccessIQ, 2014).

Most of the mobility accessibility tends to provide mobile platform based on the advanced solution for disable people forever. In addition to this, the mobile accessibility would take around professional tools that are simply cover by using the design collections forever. Since, it should carry out by giving professional mobile accessibility tools that are simply undergo by specialized device in hand. As a result, the disable people will get confidence on picking the latest mobile accessibility tools for everyone.

LITERATURE REVIEW

Disability in human makes life difficult to live, but this was a myth in past. In present scenario with the help of advancement in technology the way to handle once life with the disability content has been rationalize a bit and became easy as compared to earlier times. With the change in technology and advance in it have developed so many alternatives which helps a disabled person to cope up with the present situation in such a manner that will helps to manage things in a best possible way (Jamal Mazrui , 2013).

REVIEW OF MOBILE ACCESSIBILITY TOOLS FOR PEOPLE WITH EYE, HEARING AND HAND DISABILITY

In this era of globalization, the need and the priorities of a person are increasing day by day. Therefore, in ever niches of life whether commercialized or personal it is very for a person to get in touch with the outside environment, people, in a wider sense world. Thereby to fulfill such an important need mobile proves to be an important medium. But if a person is suffering from any kind of disability like disability with respect to eye, hearing of hand bring huge level of discomfort for him in using his/her mobile. Generally, they had to rely on others to manage their need of using a mobile handset for connecting with outside world(AT&T, 2008).

But now the picture has changed, with the advancement in technology there are so many mobile accessibility tools for the people with eye, hearing and hand disability

Mobile Accessibility Features

It is very important to making the person with disabilities accessible to mobile handsets and this can only be made possible by integrating various features in the hardware and operating systems, by installing third party applications and with the help of some specific services (AT&T, 2008).

This helps you to understand the conventional accessibility improvement features that can easily be originated in the mobile devicesavailable in markets globally.

Hearing – Fundamental Features and Facilities

Problem: The major problem with the people who are deaf is that, they are sociallydeprived as they are unable to communicate with mobile.

Solution: Now there is wide variety of accessibility features available which helps in making these disabled persons to access mobile. This can be done by making the volume tuningfacility and with the help of video transmitprovision (Brian Nadel,2010).

Figure 1 shows the Emporial Life mobile phone that is specifically designed to assist elderly individuals. This mobile has that entire feature that can overcome the problem of disability.

Figure 1: Emporial Life Mobile – Accessible handset (Ahdistribution, 2016).

Figure 2: Conversation with Sign Language with video (Ahdistribution, 2016).

Accessibility Features:

- Visual or vibrating alert
- Messaging options
- Adjustable volume controls
- Multimedia messaging service
- Call logs
- Visual od tactical indicators for the keypad
- Mono audio
- Video conferencing

- Text teletypewriter
- Captioning

Accessibility Services:

- Tailor made plans for the deaf
- Relay services

Figure 3: Websign SMS to MMS avatar (Ahdistribution, 2016).

- SMS-to-Avatar translation
- Example includes the website pf Samsung, Nokia and Motorola

Eye - Fundamental Features and Facilities

Problems:

Individualwith low vision or blindness which means who either can't see properly or completely. These people have a difficulty in using touch screen keyboard.

Solution:

Screen reader is the best solution available for such persons. This software is capable enough tointerpret and changes the displayed information on the screen into voice or speech, or non-speech sound(Brian Nadel,2010).

.**Accessibility Features:**

- Tangible markers

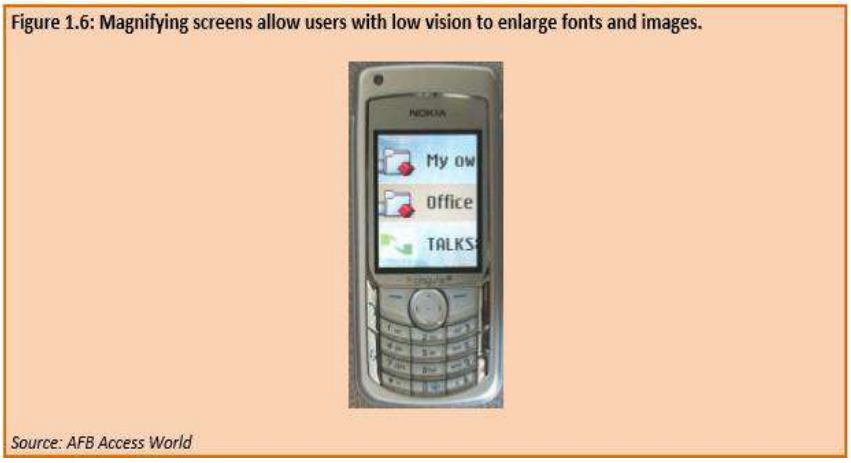


Figure 4: Magnifying Screens – increases font size (Ahdistribution, 2016).

- Perceptible or tangible feedback
- Adaptable font size
- Display readers
- Audible cues
- Changeable size for main display
- Adjustable brightness and contrast controls
- Screen magnifiers
- Basic text to speech function
- Backlit display

Availability Services:

This helps the people with disabilities to access to the Digital Libraries.

Hand - Fundamental Features and Facilities

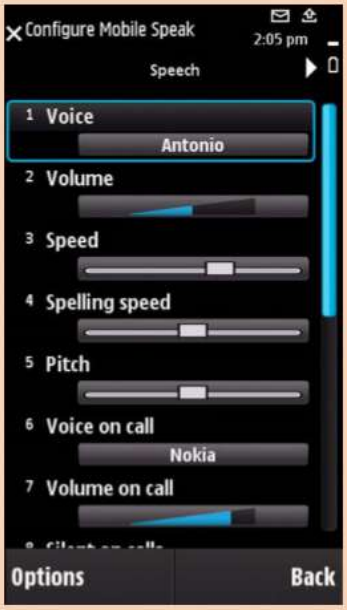
Figure 1.4: Samsung phone with elevated dots on key #5

Source: G3ict

Figure 5: Samsung Phone with elevated dots on key (Ahdistribution, 2016).

Problem:

Figure 1.5: Mobile Speak Features Adjustment – Control Panel



The Mobile Speak screen reader is a software application installed on a mobile phone for users with visual impairments or who are reading challenged. Information displayed on the screen is rendered in synthesized speech output generated using text-to-speech (TTS) technology and routed through the device's speaker or a headset. Screen contents can also be presented in Braille if the mobile phone or PDA is connected to a Braille device with a refreshable Braille display. Speech and Braille output can be used at the same time, or independently, to perform many tasks on the phone, including the following:

- *Make and receive calls.*
- *Read and write SMS messages.*
- *Manage contacts and call lists.*
- *Review dialler screen and caller ID.*
- *Browse the Internet.*
- *Send and receive emails.*
- *Manage the calendar with alarms.*
- *Create text and voice notes.*
- *Perform calculations.*
- *Listen to music and podcasts.*
- *Configure phone settings.*

Source: Code Factory

Figure 6: Mobile Speak features Adjustment Panel

The persons with hands disability, due to this disability they are unable to navigate buttons on a mobile.

Solution:

This problem could be overcome with the advanced speech recognition software. This helps to make them communicate with their mobile phone without using their hand (Brian Nadel,2010).

Accessibility Feature:

- Voice recognition
- Auto text

Web Accessibility Initiative W3C

There is an initiative taken by W3C which named by the organization as a Web Accessibility Initiative (WAI). The main aim of this initiative is to put their work process in developing strategies, guidelines and resources which helps to makes the web as well as mobile accessible to the people with disabilities. The web accessibility standard in respect to which the work had to be done is laid down by this organization some of these include (Board, C., 2016).

Web Content

Web contents are denotes to any part of website which includes multimedia, images,text and forms along with all theses it also includes any sort of applications, scripts, markup code and much more.

Authoring Tools

People use wide variety of tools by using software or services to produce web content, these tools could be summarized as- code editor, content management system document conversation tools, blogs, database, scripts and other wide variety of tools (Shawn Lawton , 2012).

User Agent

The people uses wide variety of software to access web content which includes mobile phone browser, desktop graphical browser, voice browser, multimedia player plug-ins and some other assistive technology. The content should be presented in such a manner that could be easily accessible by any of the person whether normal or disabled. As there are many alternatives for the non-text content. This includes the audio and video file which could be there in the form of brief description of non-

text content, there could be various labels to make input, controls and user interface much more familiar and easily accessible. The data being presented in more lucrative form such as chart, diagrams and illustrations. There are short equivalents for image which includes icons, buttons and graphics (Brian Nadel, 2010).

Eye Disability

The text alternative can be presented in many ways. Such as for the people who have a **disability of eye** means individuals with blindness or visionary issues, who can't read properly, enlarge to customize text sizes or making display on the brail devices for them the text can be read aloud. Here a text alternative serves as a label for as controller to aid keyboard navigator and directing by voice recognition (sound input). They also help to serves as tag to identify the various formats of file, to identify audio clips, video clips and also various others applications that are embedded as part of websites (Shawn Lawton , 2012).

Figure 7: Message Ease keyboard for Blind People(Paul NuñalJune, 2012)

Disability of Hearing

The people who have a **disability of hearing** means all those people with hearing issues who can't hear or see video should be prone with all such alternative which helps them to overcome their disability factor. For all such people various alternativeshave been derived by the W3 organization. The alternative includes the

description of audio which are in narrative form to describe important visual details in a video. They have also come up with the text transcripts and caption of audio content. This includes the recording of the people speaking that very audio content. There has been inclusion of sign language which helps in the best possible manner for the person with disability with respect to the interpretation of audio content and also includes relevant auditory experiences. A well written text transcript helps in greater way in producing caption and audio description but it should contain correct sequence of any auditory or visual information which helps to provide basic level of accessibility to the information for the same (Brian Nadel, 2010).

To help such disabled persons the content should be presented in some different way such as in the content the lists, headings, tables and other content should be marked-up properly. The presentation is being customized with the help of settings provided through assistive technologies and browser. The information is mentioned in a sequential manner followed by the instructions independent to any presentation. When all such requirements are met in a correct form then its helps the content to be presented in a correct form. As the content will be in respect to the preferences of the user, adaptive in such a manner that the basic needs could be meet out in a proper manner, enlarger and the content will be read out correctly in a louder way to help out the person with disability. The content can also be presented with the help of using custom colors with the required combinations, text size, and the font and the other styling to facilitate reading (Shawn Lawton , 2012).

When the content is distinguishable then it became easier to see and hear. The text of the content is resizable up to 200% with the help of using standard browser and with no loss of content. To avoid interference and distraction to the others people the contextual audio is set to low or can be switched off if necessary. Along with this the users can alsopause, forward and stop the played volume of the audio on a website. The colorcombination of the backgrounds and fore grounds is set in such a manner that provides sufficient contrast. This helps to make the important information more distinguishable (Thrystan, 2010).

Figure 8: An example of visual sound design for hearing disable people(Shawn Lawton , 2012).

The text is made readable and understandable this requirement can be met out with the help of software which includes assistive technology which helps to process the content in a correct manner. The software helps to read the content louder, helps in generating page summary and it also helps in defining the difficult word which makes the user to understand the content in a better way. It assistsindividuals with different types of mentalincapacities(Brande Plotnick, 2016).

Summary

Nowadays, the mobile devices are changing a way of people who are accessing it on the web. Some of the mobile devices have popularized in giving a number of accessibility tools for the disability people. The users can get a quick swipe of the

latest technology devices that are simply provided by mobile app tech. With the new interaction models, there are certain collections of mobile accessibility devices are having challenges that should meet according to the requirement. With many possible tools, it helps the disability to change their regular activities based on the mobile web accessibility devices (Nektarios Paisios, 2012).

- The technical challenges are discovered in terms of API, Platform, browser, applications, and web solutions
- Various known guidelines such as Mobile Web Best Practices (MWBP), User Agent Accessibility Guidelines (UAAG), andWeb Content Accessibility Guidelines (WCAG) to apply applications via mobile devices.
- It is based on the new interaction models such as touch interfaces and some other accessible tools.
- It also provides gesture interaction support accessibility and comes under new

The W3C WAI accessibility standards and guidelines cover the mobile accessibility too. There are no separate guidelines for it. W3C organizations are more focused and specified it framework in regard to the guidance of the mobile accessibility. WAI of W3C has formulated a Mobile accessibility work task force which works in this framework to provide mobile accessibility and also helps in the formulation of WCAG success criteria and techniques with full potential (Tim Berners-Lee, 2016). The “Mobile accessibility” states that applying all those techniques in making the websites and applications more accessible to people with the disabilities when they are using their mobile phones. Although it targets a wide range of devices such as phone, tablets, TVs and more (Shawn E., 2016).

There are various guidelines which addresses to mobile accessibility. The first and the fore most is web content accessibility guidelines (WCAG), its covers web pages and applications which includes content used in mobile devices. The second one is User agent accessibility guidelines (UAAG), these guidelines covers web browsers and other user agents including mobile browsers. It states the hoe the mobile browser which follows the UAAG guidelines benefit the people with disability while using their mobile devices. The third one is Authority tool accessibility guidelines (ATAG), that helps to cover that software used to create web

pages and application for mobile. The fourth and the last one is Accessible rich internet application (WAI-ARIA), it laid down the way to make the content more accessible, especially advance user interface controls and dynamic content (Shawn E., 2016).

Mobile Applications Stores

The technology specifically designed for the assistance of disable people is deeply investigated.As a result mobile phone applicationsbecame the ideal platform for delivering such services that helps those people. These services include navigator, email, music player, and barcode readers etc.

In the present scenario there are various tools in the form of applications are available in the market. These tools are proving to be like a helping hand, as they are benefitting the lives of the persons with the disability in such a manner which prove them an ease to tackle all their problems in a best possible manner. It became very difficult in managing once life with the disability factor involved. But as these tools in the form applications have been evolved and turned the picture completely. They have made these disabled persons to overcome their disability factor, which in turn helps them in competing with this challenging and challenging world(Distimo, 2016).

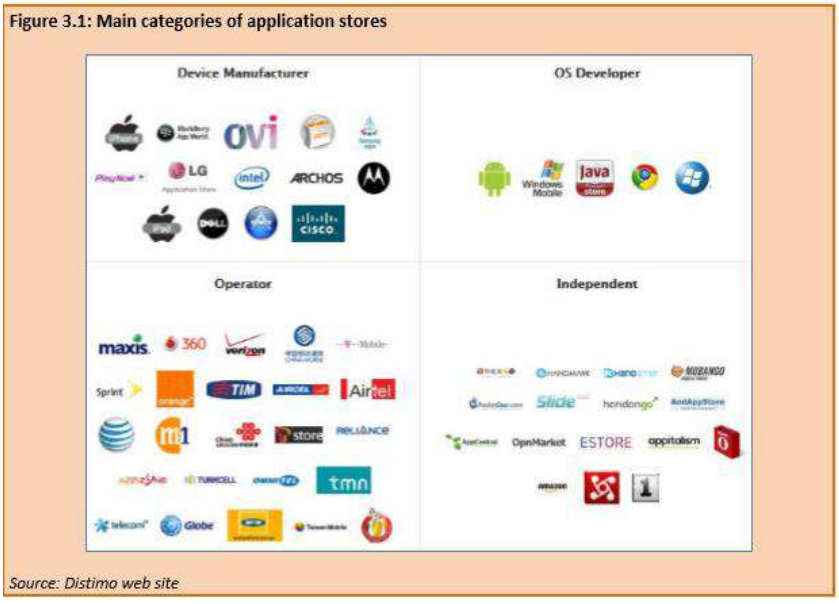


Figure 9: Distimo App Store

The list of the tools in the form of applications that are benefitting the persons with the disability factors are listed below:

Commander for Google Now

This application helps to add commands to Google Now. It is packed with feature yet to design in such a way that can be truly and easily accessible. With the help of this app Google Now just got better. With the help of this tool person with disability can control his/her mobile with a command. Just with a single command person can control flashlight, music playback, toggle settings and much more. This tool helps the person with a disability to a greater extent. All the features of the device can be made access with the help of Google now. Therefore, with the help of this person need not remember what app does what work. The person can add his/her own personal command to it which helps to personalize your phone which fits with your lifestyle.

You can get this useful application on Google play store and it is also available on various platforms (RSEN, 2015).

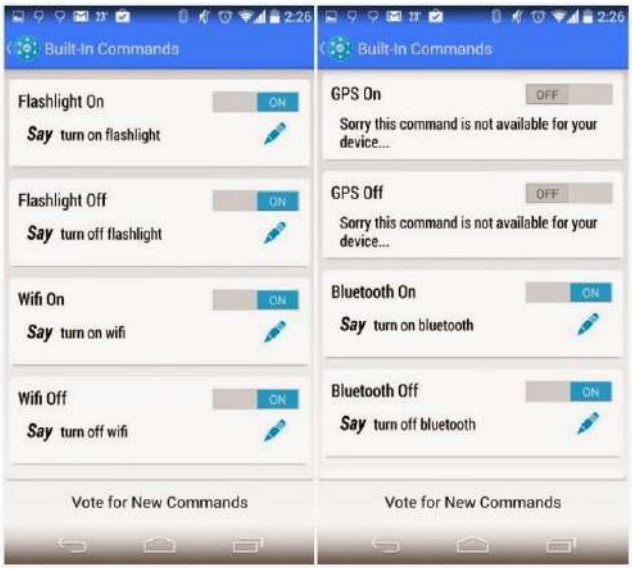


Figure 10: Google Now (Easkme, 2017)

Google Talkback

It is a Google screen reader.This is very useful tool for the person with disability of eye. The person, who cannot see, will be to able see with the help of Google talkback as it will be reading all the content present on a screen. This helps the phone accessible by the person with a disability too. Talkback gives a spoken feedback so that a person can access phone without looking at the screen.

One can use android phone with a talkback with the following steps. Firstly, turn on talkback, then Explore by touch, then use your home screen, then use talkback gesture, then open and close app, then answer and hang up call, then use talkback to browse web with your phone, then use global and local content menus, then use seek controls, then use talkback keyboard shortcuts, then go to basic android and talkback settings. Now yours Google talkback is ready to be used (Googleplay, 2016).

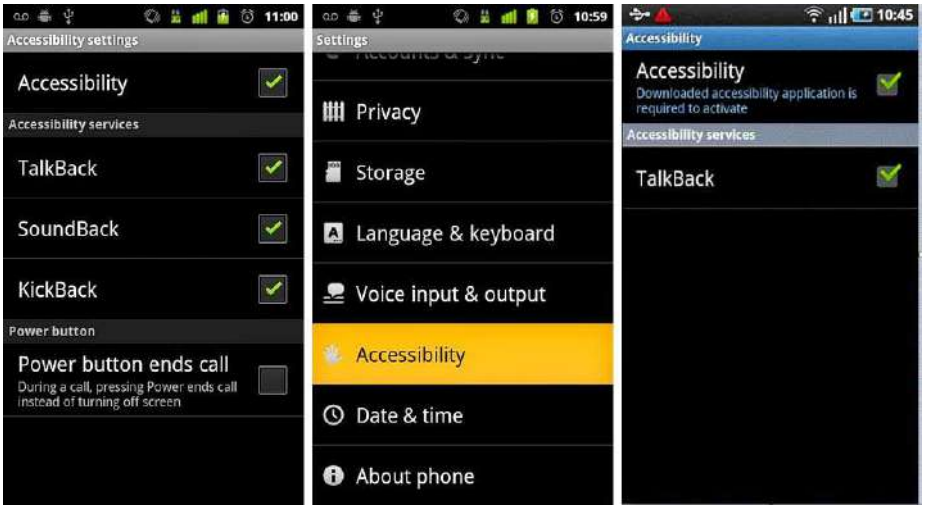


Figure 11: Google Talkback App

Google Translate

It is free multilingual machine translation service developed by Google. It helps to translate text, image, speech and real time videos from one language to another. The persons who are in hard of hearing will be able to see the content in their own legible language. As it is very important for a person to understand anything and this can only be possible when the content is in such language which is understandable by

that very person. Many a times this became an obstacle in a way. But with the help of Google translate this problem have also been resolved (GooglePlay, 2016).

Figure 12: Google Translate App

Hamilton Cap Tel

Hamilton cap tel is a very useful tool for the persons with disability. With the help of this application smartphone becomes smarter which allow you to read captions of what all those things which have been said to you during conversations. It works in a same manner that as you listen and talk people on the go. You can find this type of thing on the television also that word to word transcription is shown so that person with the disability can also understand. In the same manner it works with the phone. When you are on a call what the other person says to u displayed on the screen which helps the person with disability of hearing to understand what other person is saying which helps to complete the conversation with the ease.

A simple onetime registration is required with the Hamilton cap tel on your smartphone. After getting registered with the company, a person can place and receive calls on phone with the help of captions of what being said. It is available at no cost to the users and available on all the platforms for smartphones (Hamilton, 2016).

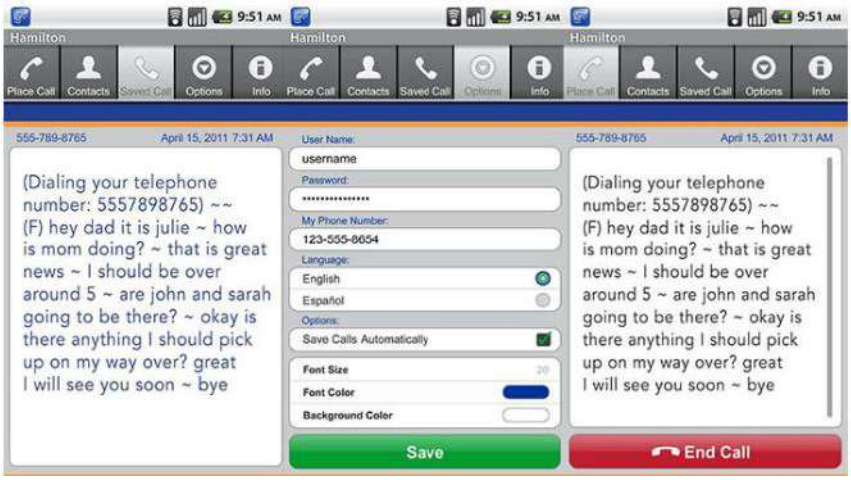


Figure 13: Hamilton Cap telefon

Eyes Free Project

These days eyes free projects are very useful. They are the onscreen keyboard which works like a helping hand in enhancing low-vision accessibility. There are wide variety of features which these eye free projects includes. Whenever person touches he on-screen keys there will be a speech feedback. This will help a person with a disability of eyes to accress his/her moobile. The another feature is that there will always be the virtual direct pad on the screen which allows easy acess to the person (Google Play, 2012).

Figure 14: Espeak

IFTTT

IFTT is a abbreviation of If This Than That, came into existence a couple of years back and can do precisely what's depicted previously. IFTTT is extremely useful for

the general population with incapacity. It makes a "formula" that search for a trigger (circumstance) and afterward perform a specific activity. A portion of the cases of IFTTT features helps the general population with handicap to a more prominent degree are cited beneath

- If I am moving toward my home, turn on the family room light, and begin playing music.
- If I leave my home, kill all lights, and set the indoor regulator to 68 degrees.
- If my plants are dry and they should be watered, send me a content warning.
- If my customer who has Alzheimer's, goes outside of a particular geographic area, send me an instant message.

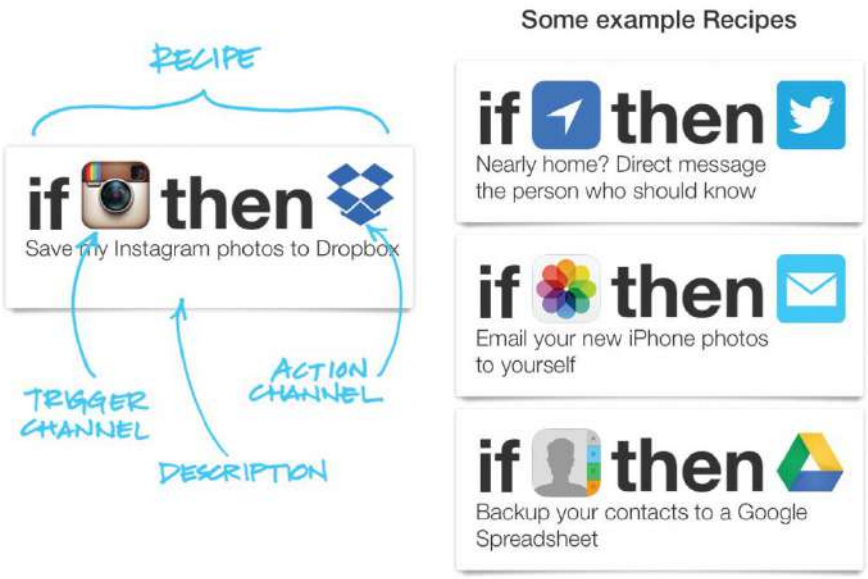
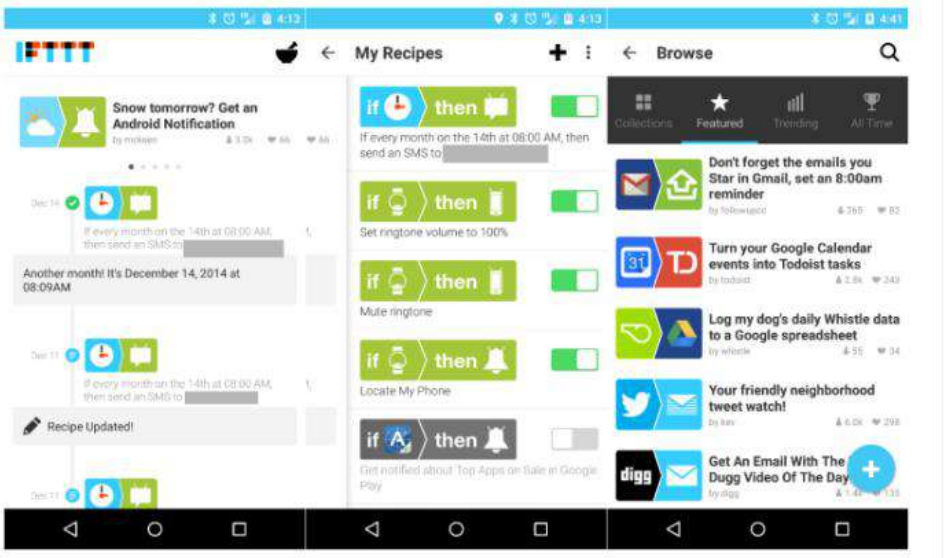


Figure 15:IFTTT App

- On the off chance that I get an email from my guardian, send me an instant message.
- On the off chance that I am in the midst of some recreation at a fascinating spot, and I am bringing photographs there with my telephone, transfer them naturally to Facebook so my loved ones can see them as well.

All the above formulas specify are the extremely basic case of "triggers" (as though I am moving toward my home) this is a trigger circumstance that can start "activity" (to turn on the family room light) and these activities are done behinds the scenes with the assistance of formulas. The formulas are quite recently the simple decides that are set up in IFTTT with the assistance of insignificant snaps.The recipes which all are mentioned above can help in a greater exten to a blind, deaf and mute people. Along with all of these it also helps to the people in a wheel chair, people having bad motor skills and for those people for whom intrecting with thw device is like somthing doing extra and which they don't want to do it, so they usually void (Venkat, 2016).

This application helps those persons in such a manner that they are able to manage their day to day need without depending on any third person for helping them in managing to do their tasks. This simply means that the series of tasks have been defined in such a manner that if this situation happens then to perform this very task. The application will able to manage the work in such manner that it will sense the situation and then in respect to that very situation it works accordingly.

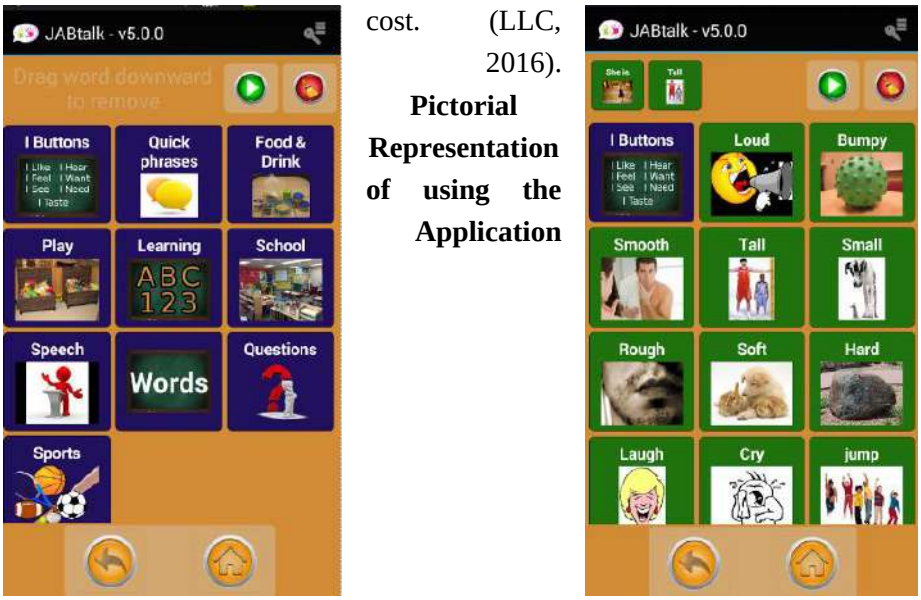


Jabtalk

Figure 16: IFTTT Features

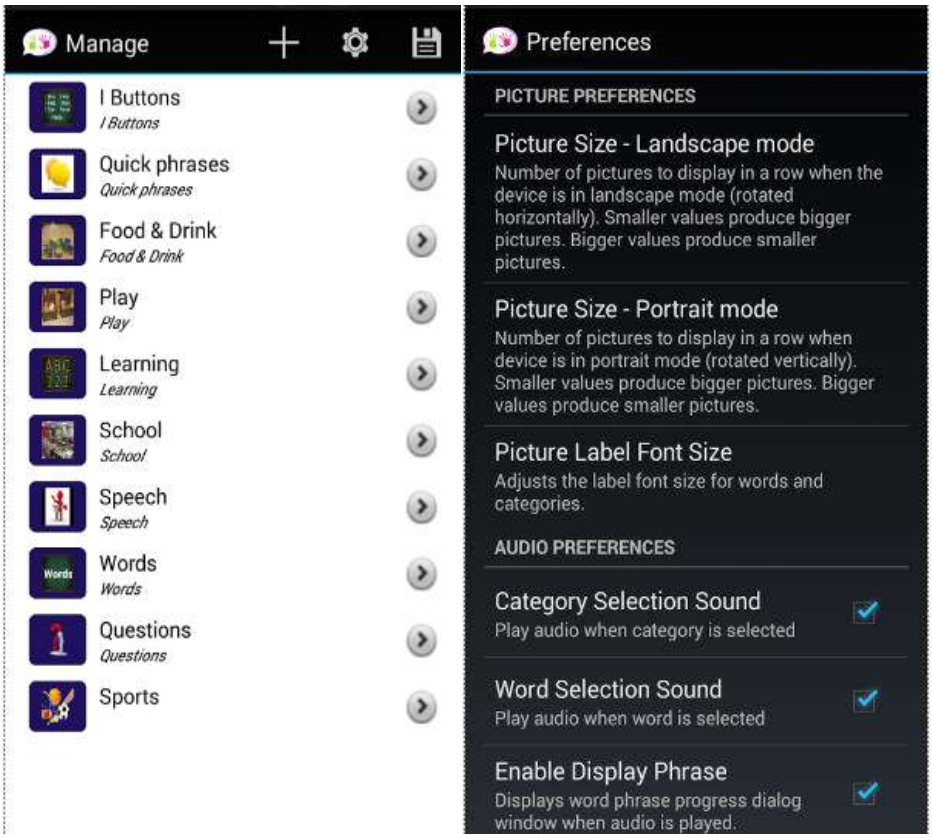
This is an useful application with respect to free speech comminication. It is designed

to help the non-verbal children and adult communication. Jabtalk works as an easy and alternative communication and effective argumentive device (AAC) that many of the speech therapist commonoly refer. As this is a pesonalised application in this by combining images with our own personalised voice along with a extremely simple user interface. It helps to delivers a speech solution that is both fun and easy to use and learn. This useful appliccation is also available on google playstore for no extra cost. (LLC, 2016).



Pictorial Representation of using the Application

Figure 17: Android based Jabtalk


Manage
I Buttons
I Buttons
Quick phrases
Quick phrases
Food & Drink
Food & Drink
Play
Play
Learning
Learning
School
School
Speech
Speech
Words
Words
Questions
Questions
Sports
Preferences
PICTURE PREFERENCES
Picture Size - Landscape mode
Number of pictures to display in a row when the device is in landscape mode (rotated horizontally). Smaller values produce bigger pictures. Bigger values produce smaller pictures.
Picture Size - Portrait mode
Number of pictures to display in a row when device is in portrait mode (rotated vertically). Smaller values produce bigger pictures. Bigger values produce smaller pictures.
Picture Label Font Size
Adjusts the label font size for words and categories.
AUDIO PREFERENCES
Category Selection Sound
Play audio when category is selected
Word Selection Sound
Play audio when word is selected
Enable Display Phrase
Displays word phrase progress dialog window when audio is played.

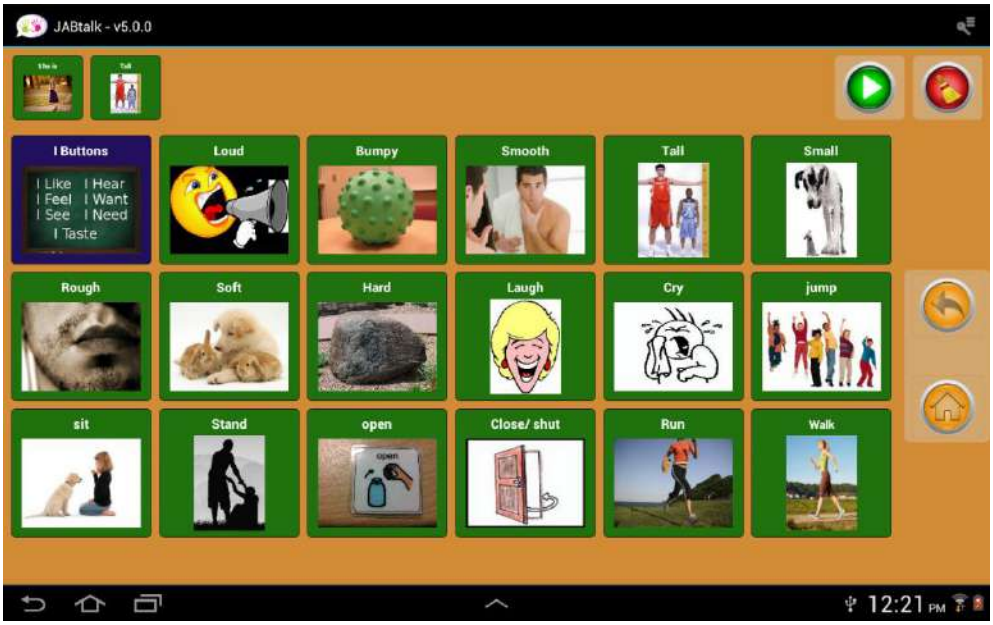


Figure 18: Web-based JabTalk

Ntouch Mobile

As some or the other innoovation is taking place each and every day to our all life more easy and comfortable. In this way only ntouch mobile are a leading provider of video relay service (VRS) for the Deaf, means for the person having disability with respect to ears. The organisation named Sorenson communication have played a grreater role in such type of innovation and also contributing for the same in the present senario too. With the help of using cutting edge technology, sorenson video relay service have contributed their specialised servises in creating this ntouch application. The main motive for which this application is made to facilitate the mobile sign language communication. The ntouch mobile application provides the best ever VRS experience just beacause it is backed by the highest quality of SVRS interpreters and its unrivaled feature set. With the help of this application person will have the power of SVRS anywhere, anytime and even on the go (Sorenson, 2016).

Figure 19: Ntouch Mobile

Tecla Access

A person who is unable to manipulate words due to disease or disability, For all such persons Tecla access is a set of tools that provide access to them to their devices such smartphones or tablets. The Tecla application is nothing but the input method that enables the external switch access to Android. Basically this application integrates tightly with the operating system which helps in enabling access to most of the functions. The important aspect is that; this application supports the wireless control of android with the help of on-screen keyboard which accessible from a powdered wheel chair or standard ability switches connected to Tecla shield. This application helps in controlling device and entering text using voice. Any of the switch action helps to answer an incoming call. Its full screen switch mode helps in enabling and using the entire screen as a single switch (Inclusive Design, 2016).

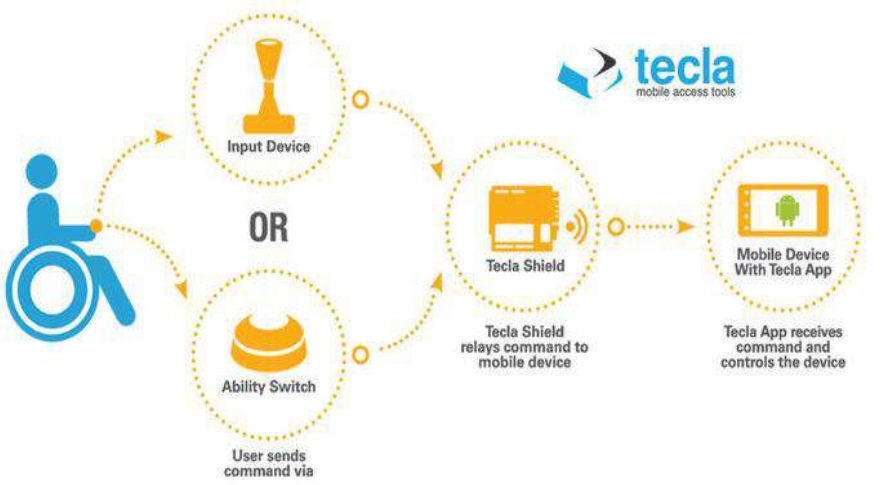


Figure 20: How a disable person can access through Tecla

Trigger and Tasker

This is an application that interacts with your surroundings and then helps to configure surroundigs on your phone automatically. This can only be made possible by combining trigger and actions to create task and after that activate that very task which you have created with the condition that you set. This is very useful application for the persons with some or the other disabilty. As it allows them to easily program their devices to the action that the do regularly. That with the use of this application a person can go ahead and create their own combinations to automate their life. Therefore this appication can be termed as living in the future (LLC, 2016).

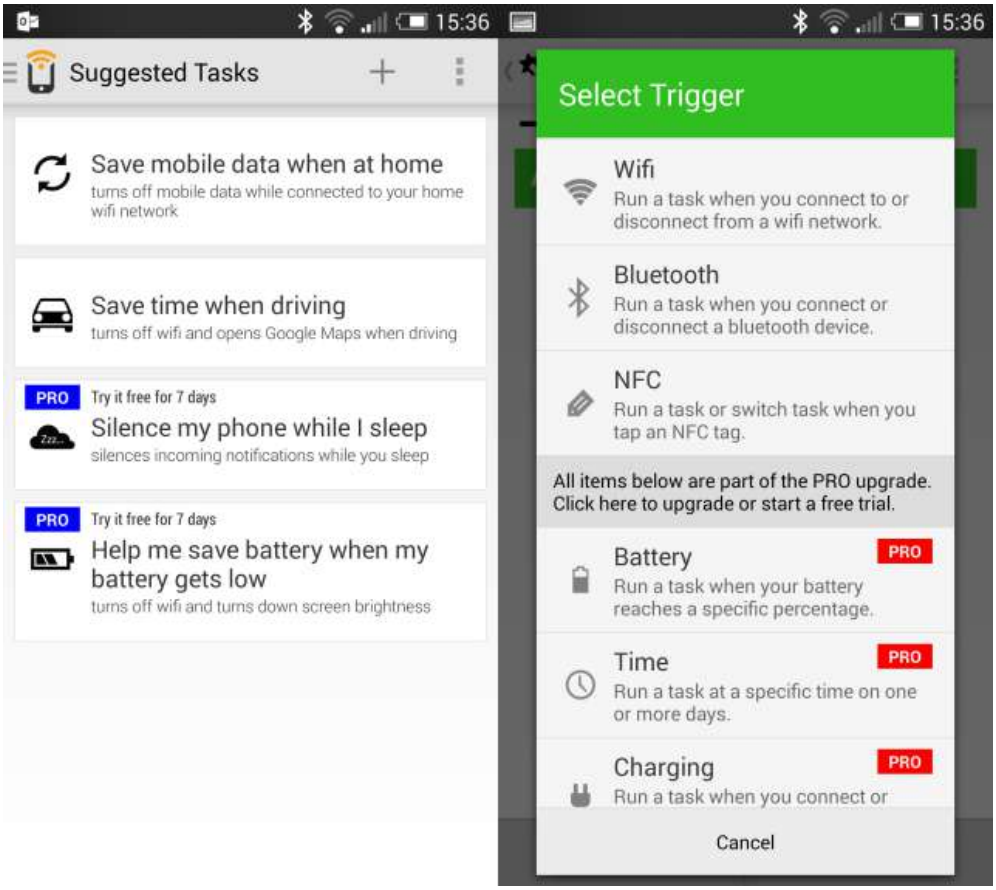


Figure 21: Trigger & Tasker App

Summary

The entire chapter is summarized in a figure below. The figure comprehensively presents all the tools discussed in this and previous chapter. We first discussed the most common applications that can be used by disable people. Moreover, in how many ways there application can be useful or how disable people can actually take advantage of these technology regarding their disability. The major features of mobile devices and website in aspects of each disability is also mentioned.

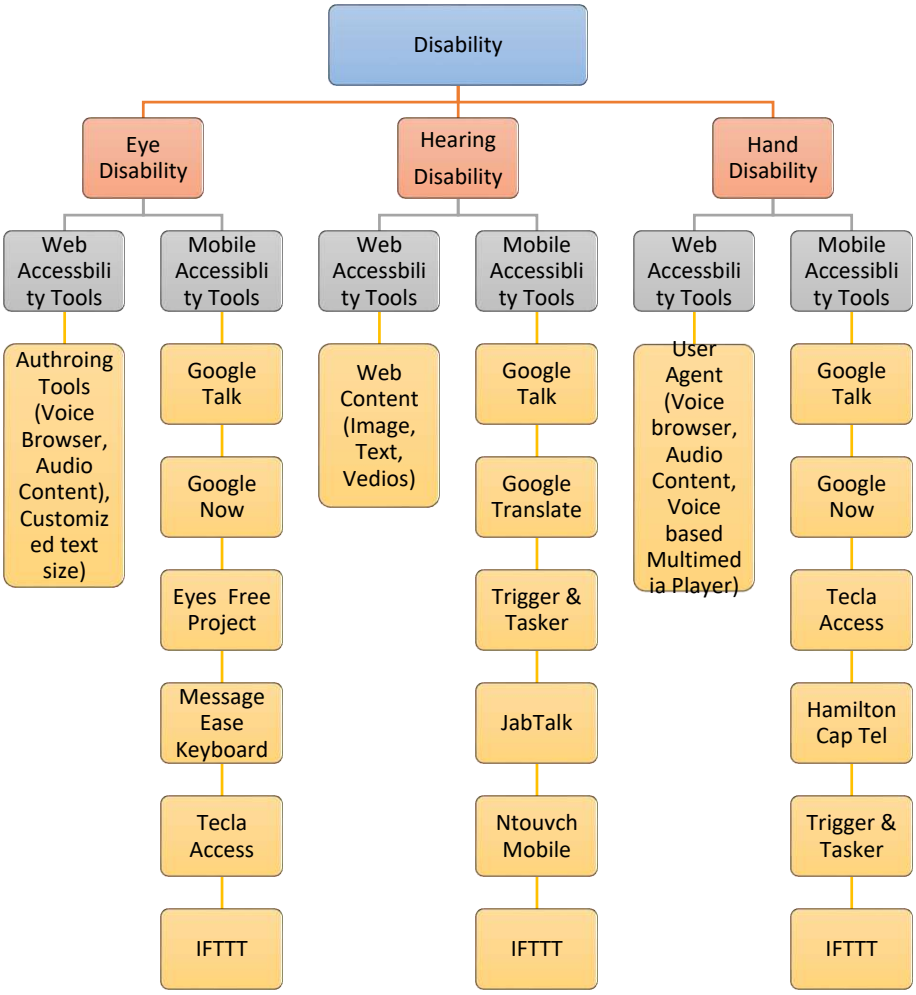


Figure 22: A comprehensive summary of mobile accessibility tools for disable people

Conclusion

It is very difficult for a person with a disability of eye, ear or hand to manage their day to day task with an ease. After reviewing all the above tools and applications one can find that, they are playing a vital role in making the life of such disabled persons simplified. By making the use of all such advanced tools and application these disabled persons are making their life simplified and worth living. As this tools and application with their sense of advancement helps these disabled persons to overcome their disability factor. These tools in the form of application helps in such a way that they create a sense of freedom in the mind of such disabled persons as they will not be relying on others to help them in performing their tasks. With the use of application such persons can help themselves on their own.

There are many organizations like W3C which have taken a good initiative to work for the persons with disabilities. These types of organizations are setting a benchmark for others. Therefore, now it can be clearly stated that there are various mobile accessibility tools are available for the people with disability of eye, hearing and hand. Such types of tools or applications have provided the ease of satisfaction to such persons. It generates the feeling in such disabled persons that we can also compete with the outside word. We are no more disable; we can act as a normal human being and can perform all such tasks that other normal person can perform.

Technology has not just made life entertaining and easier for normal humans but also disable people as well. Technology has changed the way of life for people especially with hearing, vision and hand disability. There are hundreds of applications and mobile devices that are built to help disable people so they can easily perform their daily tasks. In this study we have presented various mobile accessibility tools for disable people. It also highlights the use, benefit and features of these apps. Moreover, a detailed review on how these apps can be used and how these apps can help disable people are mentioned as well.

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ردمد: 2518-5799

Study Effect of Sintering Temperature on Micro Hardness of Mg-3Al-1Zn alloy Produced by Gas Atomization Method

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الملخص

تم في هذه العمل دراسة تأثير درجات حرارة التلبيد على صلادة سبيكة المغنيسيوم AZ31 المنتجة بطريقة الانحلال الغازي عند ضغط 35 بار وفوهة قطرها2 مم عند درجة حرارة 790 C^oوضغطت على شكل مستطيلات ذات أبعاد متساوية عند ضغط MPa 600، ثم سخنت العينات عند درجة حرارة تلبيد 500، 600,550 C^o على التوالي، عند فحص اختبار الصلادة تبين أن قيم الصلادة للعينات تنخفض بسبب درجة حرارة التلبيد.

Abstract

In this study, the effect of sintering temperatureswere investigated experimentally on thehardness of the AZ31 alloy produced via the gas atomization method at a pressure of 35 bar and a nozzle of 2 mm diameter at a temperature of 790 C^o and pressed in the form of rectangles of equal dimensions at a pressure of 600 MPa, then heated at a sintering temperature of 500,550 and 600 C^o, respectively. When the Micro Hardnesstest was examined, it has been observed that the hardness values of the samples was decreasing due to the sintering temperature.

Key words: Gas atomization, Mg-3Al-1Znmagnesium alloy, sintering temperature.

1. Introduction

In recent years, with the increasing use of lightweight martials in engineering applications where weight savings are important in performance development, the importance of magnesium and its alloys has increased in the automotive, aerospace, communication and communication industries. With the increasing demand for the use of magnesium alloys, there is a large

increase in the demand for composite materials produced by powder metallurgy. Compared to metals such as Al, Ti, Zn and Fe, magnesium with a very low density of 1.74 g / cm3 is approximately 35% lighter than aluminum alloys and 65% lighter than titanium alloys [1,2]. Magnesium is more advantageous than materials such as aluminum and titanium with high strength - density and high elastic modulus - density ratio at room temperature. In addition, it has advantages such as excellent castability, weldability and high thermal conductivity. However, the magnesium crystal causes a tight package with hexagonal (hcp) lattice structure, limited ductility and toughness with only 3 shear systems. Cold forming in magnesium is difficult to perform and therefore the forming processes need to be carried out at high temperatures [3,4]. Magnesium has a low melting temperature and is therefore very difficult to use at high temperatures. Creates a creep resistance of approx. 100 - 200 °C. In addition, the oxidation resistance decreases at high temperatures and the resulting oxide layer accelerates oxidation [5,6]. However, the mechanical properties of magnesium alloys have been improved in order to increase the creep and oxidation resistance at room temperature and at high temperatures. Magnesium-based composite materials products, with many advantages and uses are increasing. Magnesium and magnesium alloys of commercial purity have higher mechanical properties and are more useful at high temperatures. Therefore, the use of magnesium and magnesium based composite materials in engineering applications is increasing day by day [5].

2. Applications of Magnesium and Alloys

2.1. Automotive Industry

The aim of the automotive industry worldwide is to produce light, environmentally friendly, safe and cheap vehicles. Vehicle manufacturers aim to reduce vehicle weights by taking into account user requests and decisions made for environmental health and to reduce harmful exhaust gases from vehicles.As it is known, the fuel consumption increases as the vehicle weight increases.Many

researches have been carried out in the automotive industry on magnesium alloys. For example, Volkswagen used 22 kg of magnesium and its alloys in the Beetle model vehicle [9]. In 1928, Porsche used magnesium and its alloys in engine construction [6]. The lightest six-cylinder engine, weighing 161 kg, used Mg-Al alloy in the BMW R6 model. Mg-Al alloy Al material provided 24% light weight and low fuel consumption compared to used engine. Using the magnesium in the V8 Quattro model of the Audi V8, the weight of the other 8-cylinder engines is 5 kg [10]. Figure 1 shows the display panel, AM50 or AM60B 12 kg if made of magnesium alloy and 18 kg if made of steel [11].

Figure 1. Examples of magnesium used doors.

Figure 2. Land Rover Dashboard and steering wheel produced from magnesium alloy

2.2. Aerospace Industry

Magnesium has been used in aerospace industry, aircraft construction since the 1900s and has become widespread in 1950s. After 1950, a significant amount of magnesium was used in the construction of military aircraft and aircraft. The Sikorsky S-56 model made by Westland Aircraft in 1950 used 115 kg of magnesium. 8600 kg of magnesium was used by the European aircraft industry in the construction of the Convair B-36 Peacemaker model. The use of magnesium in the aircraft industry has decreased since

the 1990s, but the helicopter industry continues to use parts such as gearboxes and gearboxes [8]. Furthermore, the Technical Data Package (TVP) was prepared with the design of the ATAK helicopter's upper body Figure 3 and the design parameters of the magnesium casting process and domestic design [10].

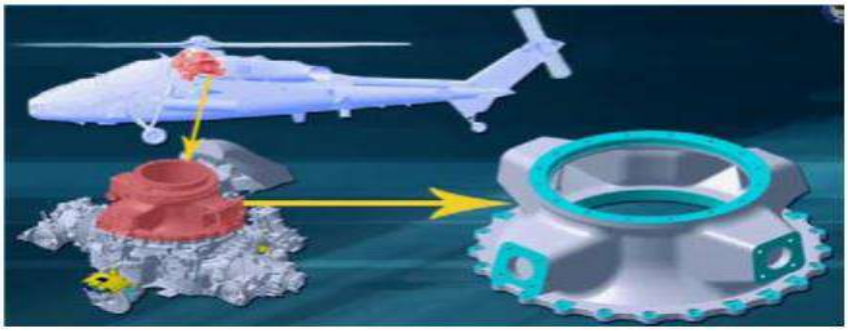

Figure 3. Upper body of ATAK helicopter gear box

2.3. Biomaterials Industry

Materials used to perform or support the functions of organs or tissues in the human body are called biomaterials. Metals, ceramics, polymers and composites are divided into 4 groups. The human body is a highly corrosive environment for materials used as biomaterials. Stainless steels, titanium and its alloys and chromium and cobalt alloys are metallic biomaterials used today. These materials may be toxic ion or particles from corrosion or

abrasion, leaking into the tissue and damaging the cells, which can lead to tissue loss. In addition to the low density of magnesium, it has a higher fracture toughness than other ceramic biomaterials.In alloys containing more than 2% Figure 4 by weight aluminum, a number of eutectic phases are usually formed depending on the cooling rates. Therefore, a significant amount of eutectic phase formation is observed in magnesium alloys such as AZ31, AM50, AM60 and AZ91. The eutectic six magnesium-aluminum alloys have a wide range depending on the composition and cooling rate. [8].

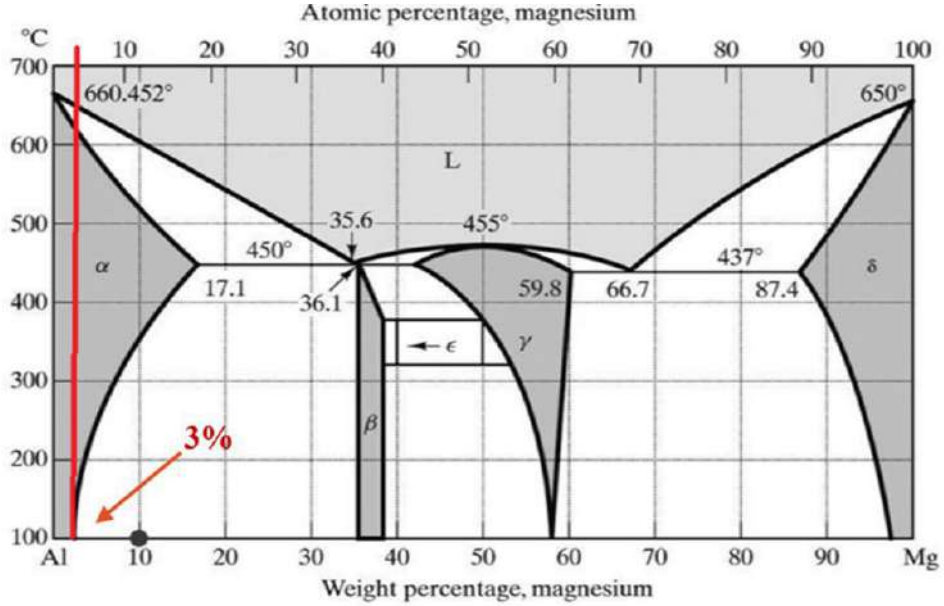

Figure 4. Mg-Al phase diagram [7].

3. Experimental Work

Experimental work were carried out at the Gas Atomization Unit at Karabük University Faculty of Technology Department of Manufacturing Engineering Department. The Gas Atomization Unit shown in Figure 5 consists of many basic parts. These; Melting furnace, Atomization tower, Nozzle and nozzle

holder, Powder collecting unit, Gas pressure ramp, Cyclones and Control panel.

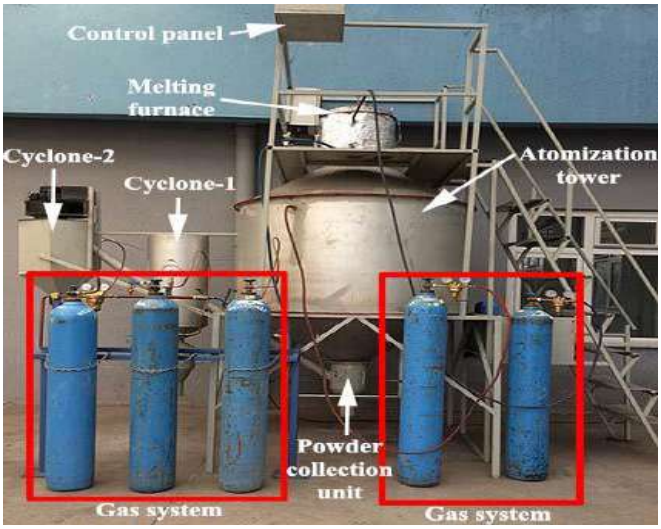

Figure 5. Gas atomization unit

Experiments were carried out at a gas pressure of 25bar, 2 mm nozzle diameter, temperature 790 C°. Argon gas is used as the atomizing gas. Powder size analyzes were performed with the Mastersizer 3000 model device in the Central Research Laboratory of Bartın University. The powders produced in different parameters and then mixed in the turbulent were subjected to pressing. In the pressing process, a rectangular mold with a dimension of 30*13*7 mm was used as a die. Approximately 4.7 grams of powder was applied to each sample and pressed. Pressures of 600 MPa were applied as the pressing pressure. Figure 6 shows the appearance of the raw material is converted to raw mass.

Figure 6. General view of pressed powders

The samples , which were pressed and massed at pressure 600 MPa, were subjected to sintering in controlled furnace for two hour at three different temperatures (500, 550 and 600 C°).In order to determine the optimum sintering temperatures. Sintering temperatures were kept at a constant temperature for 120 minutes, the cooling zone in room temperature up to 180 minutes were cooled under atmospheric control.

3.1. Micro Hardness Test after Sintering

The Micro hardness measurements were performed to determine the effect of sintering temperature on the hardness of the samples produced at pressing pressures 600 MPa and different sintering temperatures (500, 550 and 600 °C). The hardness measurements were taken under (HV 0.5) and 15 seconds retention time. The hardness values were determined by calculating the average of 3 hardness values of each sample. Hardness results are given in Table 1.

Table 1. Hardness values after sintering.

no	Pressure (MPa)	Temp (Cº)	1.Measurement (HV0.5)	2.Measurement (HV0.5)	3.Measurement (HV0.5)	Average Value (HV0,5)
1	600	500	54.9	55.4	54.3	54.86
2		550	54.2	53.5	53.3	53.6
3		600	54.1	53.2	53	53.4

4. Results and Discussion

When the hardness results given in Table 9.7 were examined, it has been observed that the hardness values of the samples were decreasing due to the sintering temperature. The highest hardness value was 54.86 HV0,5 at same 600 MPa pressing pressure and 500 °C sintering temperature, at same 600 MPa pressing pressure, 600 °C sintering temperature 53.4 HV0,5 with the lowest hardness value was obtained.

Hence, as the hardness measurements of the samples are made homogeneously on all surfaces, the increase in the sintering temperature causeda remarkable decrease in the hardness values, whereas in the sample produced at 600 °C Mg17Al12, the decrease in hardness was noticed at the grain boundaries.

5. Conclusion

The hardness values of the samples decreased due to the increase in sintering temperature. The decrease in these hardness values is thought to be caused by the formation of a brittle structure due to sintering temperature and rapid solidification during atomization. In the samples sintered at low temperatures, Mg17Al12 was distributed to the entire surface homogeneously, whereas in the sample produced at 600 Cº, Mg17Al12 was deposited on the grain boundaries. The highest hardness values of the massed samples were measured at 54.86 HV0, 5 at 600 MPa pressing pressure and 500 Cº sintering temperature.

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Unveiling the Effects of Social Media on Social Relationships: "A Systematic Literature Review of Communication Patterns, Relationship Quality, and Well-being"

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Abstract:

This systematic literature review aims to reveal the effects of social media on social relationships by examining the existing body of research on communication patterns, relationship quality and well-being. Through extensive research and analysis of relevant studies, this review brings together current knowledge regarding the impact of social media on these key aspects of social relationships. The review begins by identifying the role of social media in shaping communication patterns within social relationships, including the frequency, manner and style of communication. It explores how social media platforms influence the initiation, development and maintenance of relationships, as well as the potential challenges and benefits associated with these communication styles. Moreover, this review delves into the impact of social media on relationship quality, examining factors such as trust, satisfaction, and intimacy. It explores how the use of social media may enhance or harm the quality of social relationships, considering both positive and negative consequences. In addition, the review investigates the impact of social media on an individual's well-being within social relationships. It explores potential links between social media use and outcomes for mental health, self-esteem, loneliness, and overall well-being. The review also acknowledges the potential for social media to provide social support and connections that contribute positively to well-being. By compiling the results from a group of studies, and based on the results of the study, most people are convinced of using social media platforms and have experience in using them . The volume of exploitation of social networking platforms for the study sample is considered very high, at 95%. This literature review also provides a comprehensive understanding of the effects of social media on social relationships. It highlights gaps in current research and identifies areas for future investigation. The insights gained from this review can inform individuals, researchers and practitioners interested in understanding and navigating complex interaction.

الملخص:

تهدف مراجعة الأدبيات المنهجية هذه إلى الكشف عن تأثيرات وسائل التواصل الاجتماعي على العلاقات الاجتماعية من خلال فحص مجموعة الأبحاث الحالية حول أنماط الاتصـــال وجودة العلاقة والرفاهية. من خلال البحث والتحليل الشـــامل للدراســـات ذات

Unveiling the Effects of Social Media on Social Relationships:

"A Systematic Literature Review of Communication Patterns, Relationship Quality, and Well-being"

الصـــلة، تجمع هذه المراجعة المعرفة الحالية فيما يتعلق بتأثير وســائل التواصــل الاجتماعي على هذه الجوانب الرئيســية للعلاقات الاجتماعية. تبدأ المراجعة بتحديد دور وسائل التواصل الاجتماعي في تشكيل أنماط الاتصال داخل العلاقات الاجتماعية ، بما في ذلك تكرار وطريقة وأسلوب الاتصال. يستكشف كيف تؤثر منصات التواصل الاجتماعي على بدء العلاقات وتطويرها وصيانتها ، بالإضـــافة إلى التحديات والفوائد المحتملة المرتبطة بأنماط الاتصـــال هذه. علاوة على ذلك، تتعمق هذه المراجعة في تأثير وســـائل التواصـل الاجتماعي على جودة العلاقة، دراسـة عوامل مثل الثقة، رضـا، والعلاقة الحميمة. يسـتكشـف كيف أن اسـتخدام وسـائل التواصل الاجتماعي قد يعزز أو يضر بجودة العلاقات الاجتماعية ، مع الأخذ في الاعتبار العواقب الإيجابية والسلبية. بالإضافة إلى ذلك ، تبحث المراجعة في تأثير وسائل التواصل الاجتماعي على رفاهية الفرد داخل العلاقات الاجتماعية. يستكشف الروابط المحتملة بين استخدام وسائل التواصل الاجتماعي ونتائج الصحة العقلية، احترام الذات، الشعور بالوحدة، والرفاهية العامة. تقر المراجعة أيضا بإمكانية قيام وسـائل التواصـل الاجتماعي بتوفير الدعم الاجتماعي والاتصـالات التي تسـاهم بشـكل إيجابي في الرفاهية. من خلال تجميع النتائج من مجموعة من الدراسـات،وبالاسـتناد لنتائج الدراسـة فإن معظم الاشـخاص مقتنعون باسـتخدام منصـات التواصـل الاجتماعي ولديهم خبرات في استخدامها . حيث يعتبر حجم استغلال منصات الواصل الاجتماعي لعينة الدراسة عالي جدا وبنسبة 95%. كما توفر مراجعة الأدبيات هذه فهما شـاملا لتأثيرات وسـائل التواصـل الاجتماعي على العلاقات الاجتماعية. يسـلط الضـوء على الثغرات في البحث الحالي ويحدد مجالات التحقيق في المستقبل. يمكن للرؤى المكتسبة من هذه المراجعة إبلاغ الأفراد والباحثين والممارسين المهتمين بفهم التفاعل المعقد والتنقل في.

1. Introduction:

Social media platforms have revolutionized the way people communicate and interact in the digital age. With the rapid advancement of technology, individuals now have unprecedented access to a vast array of social networking sites, allowing them to connect with friends, family, and acquaintances from across the globe. While social media offers numerous benefits in terms of information dissemination, entertainment, and networking opportunities, its impact on social relationships remains a topic of ongoing debate and research.The rise of social media has undoubtedly transformed the social landscape, shaping the dynamics of personal relationships and community interactions. It has become a powerful tool for self-expression, enabling individuals to share their thoughts, experiences, and emotions in real-time. The ease of use and accessibility of social media platforms have contributed to their widespread adoption, with billions of people actively engaging on platforms such as Facebook, Instagram, Twitter, and TikTok.This study aims to delve into the complex relationship between social media and social relationships,

exploring both the positive and negative consequences of its use. While social media has the potential to enhance connectivity and foster meaningful relationships, it also introduces new challenges and risks that can impact the quality and depth of social interactions.Understanding the impact of social media on social relationships is crucial in today's interconnected world. It can provide insights into how people navigate and negotiate their online and offline identities, as well as shed light on the ways in which social media influences social behaviors, emotions, and well-being.

By examining existing literature and empirical research, we can gain a comprehensive understanding of the multifaceted nature of social media's impact on social relationships. This exploration will help identify the factors that contribute to positive social outcomes and identify strategies to mitigate any negative consequences that may arise from the use of social media.Ultimately, this research aims to contribute to the ongoing discourse surrounding social media's influence on social relationships, providing valuable insights for individuals, policymakers, and researchers alike. By better understanding the implications of social media use, we can harness its potential for positive impact and develop guidelines and interventions that foster healthy, meaningful, and fulfilling social relationships in the digital age.

2. Research Objectives:

The objectives of studying the impact of social media on social relationships can include:

1- to exploring how social media platforms influence the frequency, mode, and style of communication, as well as the implications for relationship formation, maintenance, and dynamics.

2- to gain a comprehensive understanding of how social media impacts the overall quality and dynamics of social relationships.

3. Research Questions:

1- How does the influence of social media on communication patterns impact relationship formation, maintenance, and dynamics?

2- What are the implications for the initiation and development of relationships through social media platforms?

3- How does social media affect the availability and accessibility of communication channels, and how do these changes influence the overall communication dynamics within social relationships?

4. Research Significant:

The research titled "Unveiling the Effects of Social Media on Social Relationships: A Systematic Literature Review of Communication Patterns, Relationship Quality, and Well-being" holds significant importance due to:

- Understanding the impact of social media: Social media has become an integral part of modern society, and its influence on social relationships is undeniable. This research provides a systematic examination of the effects of social media on communication patterns, relationship quality, and well-being. By gaining a comprehensive understanding of these effects, individuals, researchers, and practitioners can make informed decisions regarding social media use and its impact on relationships.

5. Research Scope:

the scope of this research study encompasses the examination of social media's influence on communication patterns, relationship quality, and well-being outcomes within social relationships. It utilizes a systematic literature review approach and provides practical implications and recommendations based on the findings.

6. Research Key words:

Here are some key words related the title "Unveiling the Effects of Social Media on Social Relationships: A Systematic Literature Review of Communication Patterns, Relationship Quality, and Well-being" are as follows:

Unveiling, Effects, Social Media, Social Relationships, Systematic Literature Review

Communication Patterns, Relationship Quality, Well-being.

7. Research literature review:

*** Social and psychological effects of internet addiction:**

Bella Mihanovitz conducted this study in (2001) on 114 students in the state of Michigan, USA. The researchers used two scales , a quantitative scale based on the amount of time young people spend in online chat rooms and another four-item scale measuring the degree of internet orientation. The study found that the orientation towards the internet increased as the time students spent in online chat rooms increased.(Bellamy, 2001)

***The impact of the internet in society:**

This study was conducted by Mohammed Al-Khulaifi in(2002), and applied to(137) undergraduate students, and the network aims to identify the impact of the internet in society by investigating the benefits and disadvantages of the internet ،The researcher relied on the descriptive analytical method, as for the study tools were the interview and the questionnaire, and the study came to:

- That most of the members of the Muslim community (91.7) have a desire to use the internet, and the most important uses were concentrated in the purposes of contact, exchange information with others, search for information, entertain and entertain.

According to the researchers, the disadvantages of the internet were that it helps cultural invasion, causes social and moral problems ،-And hygienic with frequent use.(الخليفي، 2002)

***The impact of the use of technology on social relations:**

This study was conducted by Michel Vanson in (2010), and it was applied to a sample of (1600) young users of social media networks in Britain, where it aimed to identify the impact of using social media networks on social relationships, the researcher used the descriptive analytical method and questionnaire tool to collect information and the study reached several results, the most important of which:

- ❖ More than half of adults who use sites including Facebook and YouTube admitted that they spend more time online than with their real friends or family members.

- The study also showed that they talk less on the phone and do not watch TV much, and that electronic communication networks has changed the lifestyle of (53%) of the respondents.(Vansoon, 2010).

***University youth communicate through social sites:**

This study aimed to identify the real motives for communication among university youth through websites the social. The study confirmed that the communication of university youth through social sites is a more social phenomenon than a necessity created by modern technology.

It showed that the addiction of the youth group to excessive use of social sites, led to the loss of required skills to establish social relationships in the real community environment and decline personal contact in exchange for communication via sites social alienation, which leads to the delinquency of young people towards social alienation. (Hafeed,2011)(حافظ، 2011).

8. Research Methodology:

The methodology for studying the impact of social media on social relationships can vary depending on the specific research objectives and the nature of the study. in this research Questionnaires method was used.

Surveys and questionnaires are commonly used in research to study the impact of social media on social relationships. These methods involve collecting self-reported data from individuals through a series of structured questions. Here are some key points to consider regarding the use of surveys and questionnaires in studying the impact of social media on social relationships:

- **Survey or Questionnaire Design:** Research objectives and specific research questions guide the design of the survey or questionnaire. The researcher carefully constructed questions that capture relevant information about social media use, perceptions of social relationships, and experiences. Questions may cover topics such as frequency of social media use, types of social media platforms used, perceived social support from online interactions, and changes in offline social interactions due to social media.

- **Sampling:** The researcher selected a sample of participants representing the target population. This ensures that the results can be generalized to a larger

population. Sampling methods can include random sampling, convenience sampling, or stratified sampling, depending on the research design and available resources.

- **Data analysis:** surveys and questionnaires generate quantitative data that can be analyzed using statistical methods. The researcher can examine the relationships between variables, such as linking social media usage patterns to perceived social support or changes in offline social interactions. Statistical analysis techniques may include descriptive statistics, deductive statistics, regression analysis, or factor analysis, depending on the research objectives.
- **Limits of research:**
  1- Time limits:year 2023 from the month of August.
  2- Spatial limits: a random sample in Yefren city.
  3- Humanitylimits :a random sample of different age strata, genders and various social statuses.
- **Study variables:**

1- **Independent variable:** the use of electronic communication networks and its determinants: (age, educational qualification, number hours of used).

2- **Dependent variable:** social relations and their dimensions: (search for new friendships, strengthening old friendships،communicate with friends who are spatially distant, communicate with different nationalities from all over the world).

- **Statistical methods:**

The data were analyzed using the statistical program SPSS, where descriptive statistical methods were used through the use of repetitions, percentages.(محمد، 2012)

9. Research result:

"As we know, this study examines the topic of social media and its impact on social relationships among university female students, with an applied sample of size 100 . Based on the research questions addressed in the study and the collected and analyzed data, the most important results will be presented, interpreted, and discussed.

1- distribution of sample individuals by age categories:

Table (1) distribution of sample individuals by age categories

age	Frequency	%
<20	40	42%
Between20&30	35	37%
>30	20	21%
Total	95	100%

The previous table shows that the largest proportion of the study sample falls within the age category of <20 years, constituting 42% of the sample. Following that are those whose ages are between20-30 years, accounting for37%. Then, there are those in the age range of >30 years, comprising 21% of the sample.

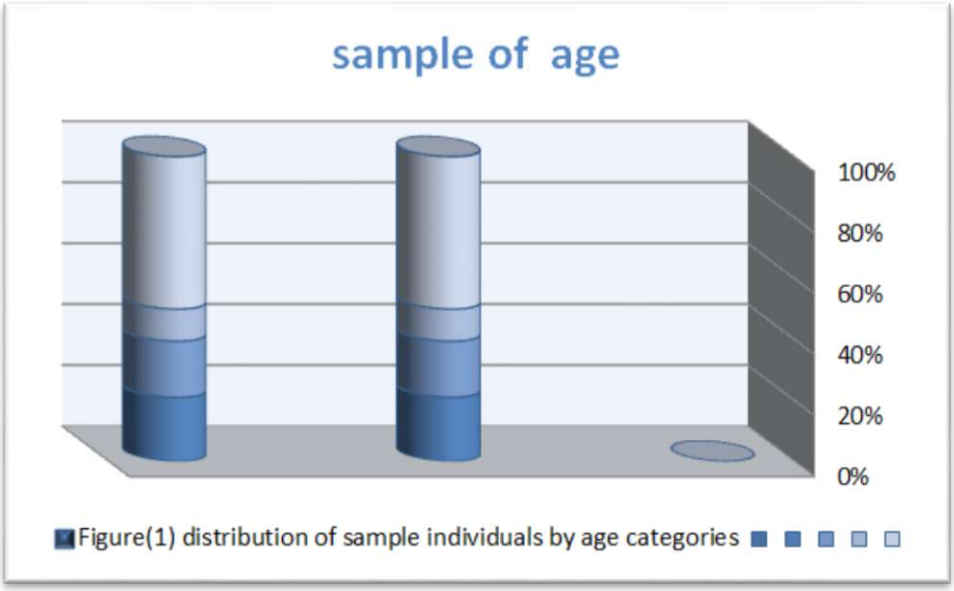

Figure (1)distribution of sample individuals by age categories

2- Sample distribution by gender:

Table (2) gender sample

gender	Frequency	%
Male	**50**	**53%**
Female	**45**	**47%**
Total	**95**	**100%**

The previous table shows that the largest proportion of the study sample is male, constituting 50% of the sample. Following that are female Where represents 45%.

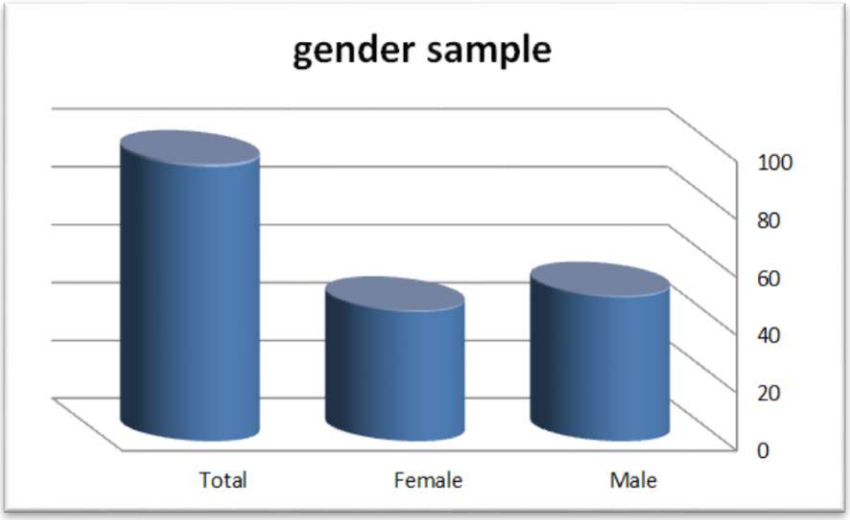

Figure (2)gender sample

3- Distribution of the sample by scientific qualification:

Table (3) scientific qualification

scientific qualification	Frequency	%
High school	**38**	**40%**
Bachelors & diploma	**32**	**34%**
Master & PhD	**25**	**26%**
Total	**95**	**100%**

The previous table shows that the largest proportion of the study sample falls within the High school, constituting 40% of the sample. Following that are those whose have Bachelors & diploma, accounting for 34%. Then, there are those in the Master & PhD, comprising 26% of the sample.

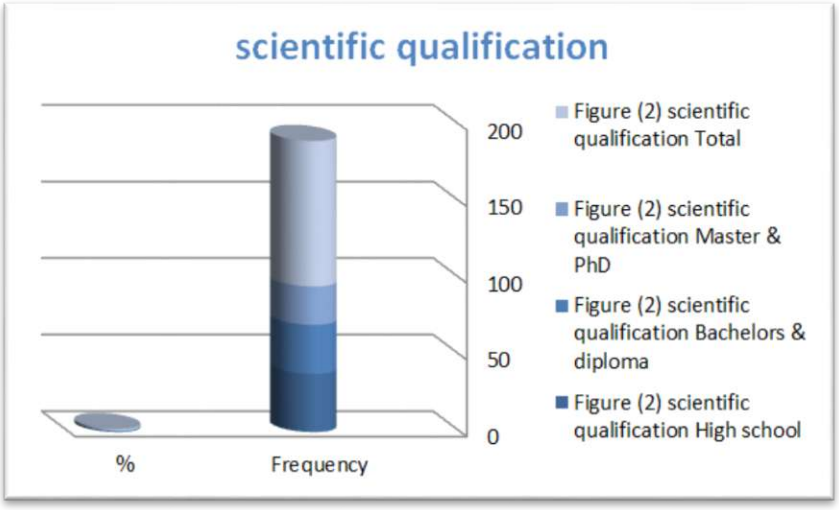

Figure (3) scientific qualification

4- Numbers an hours of used social media platforms in a day:

Table (4) number of used an soial media

number hours	Frequency	%%
2 hours	**12**	**13**
2-5 hours	**37**	**39%**
5-6 hours	**41**	**43%**
Above of 6 hours	**5**	**5%**
Total	**95**	**100%**

The previous table shows of number an hours of used social media platforms in a day that the largest proportion of the study sample its 5-6 an hours in a day , constituting 43% of the sample. Following that 2-5 an hours, accounting for 39%. Then, following 12% and 5% of the sample.

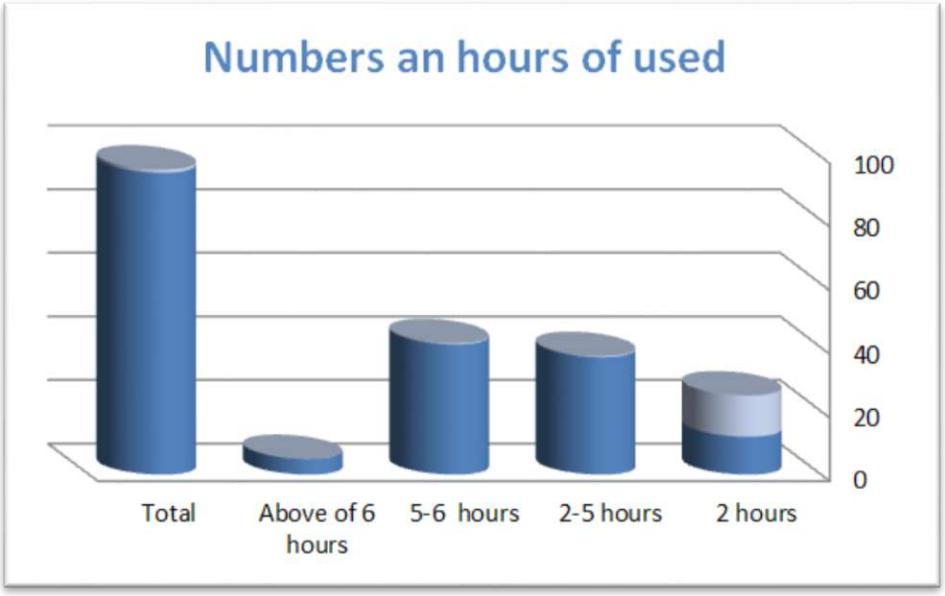

Figure (4) numbers an hours of used

5- The most used social media platforms:

Table (5) The most used social media platforms

The most used	Frequency	%
Facebook	**25**	**26%**
Instagram	**35**	**37%**
Twitter	**10**	**11%**
TikTok	**25**	**26%**
Total	**95**	**100%**

The previous table shows the largest percentage in the use of social media platforms, namely Instagram, which represents 37% of the study sample, followed by Facebook and TikTok, which represent 26% of the study sample, and finally followed by Twitter, which represents only 11% of the sample.

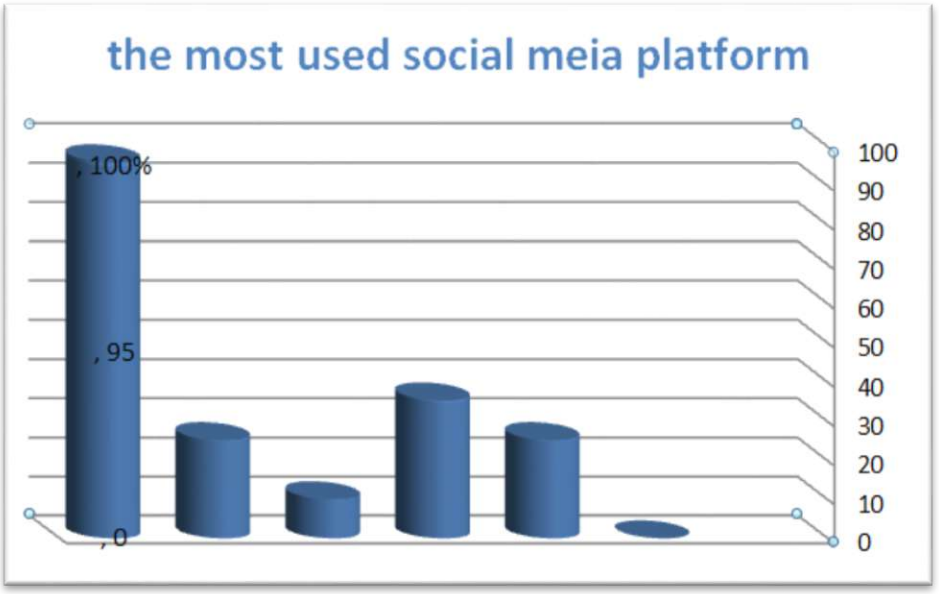

Figure (5)The most used social media platforms

6- Distribution of respondents by social status:

Table (6) social status

social status	**Frequency**	%
Single	**35**	**37%**
Married	**15**	**16%**
Divorced	**25**	**26%**
Widower	**20**	**21%**
Total	**95**	**100%**

The previous table shows the largest percentage social status in the use of social media platforms is single, which represents 37% of the study sample, followed by

divorced, which represent 26% of the study sample, followed by widower, which represents only 21% of the sample, and finally followed by married, which represents only 15% of the sample.

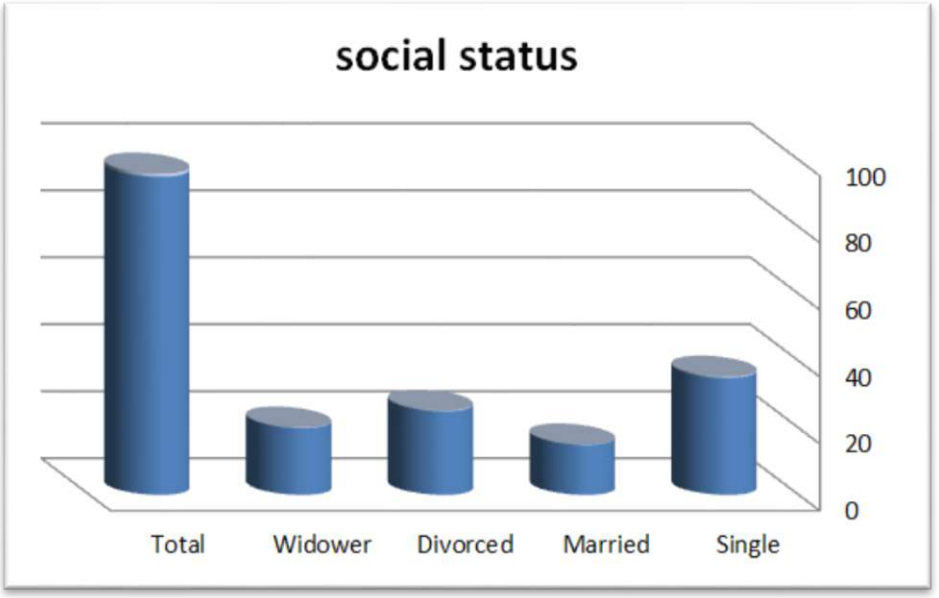

Figure (6) social states

10. Conclusion:

The systematic literature review aimed to explore the influence of social media platforms on communication patterns and the implications for relationship formation, maintenance, and dynamics. It also aimed to gain a comprehensive understanding of how social media impacts the overall quality and dynamics of social relationships. Based on the reviewed literature, the following conclusions can be drawn:

1. Communication Patterns: Social media platforms have significantly influenced the frequency, mode, and style of communication. The review reveals that social media has become a prevalent medium for communication, with individuals using platforms such as Facebook, Twitter,

and Instagram to connect with others. These platforms offer various communication modes, including instant messaging, video calls, and public posts, providing individuals with new ways to interact and express themselves.

2. Relationship Formation: Social media has had a notable impact on relationship formation. The review suggests that social media platforms have facilitated the formation of new relationships by connecting individuals with shared interests or by reconnecting people from the past. Through features like friend requests, online communities, and dating apps, social media has expanded the opportunities for people to meet and initiate relationships.
3. Relationship Maintenance: Social media plays a crucial role in relationship maintenance. The review indicates that individuals utilize social media platforms to stay connected with family, friends, and acquaintances, especially in long-distance relationships. Social media allows for frequent communication, sharing updates, and expressing support, which can contribute to the maintenance and strengthening of social ties.
4. Relationship Dynamics: Social media has introduced new dynamics into social relationships. The review highlights that social media platforms have created opportunities for public displays of affection, jealousy-inducing behaviors, and surveillance in relationships. These dynamics can influence relationship satisfaction, trust, and conflicts. The review also suggests that social media can amplify existing relationship dynamics, both positive and negative, depending on how it is used by individuals.
5. Overall Relationship Quality: The impact of social media on the overall quality of social relationships is complex. While some studies indicate negative effects such as increased conflict, decreased relationship satisfaction, and feelings of jealousy, others suggest positive outcomes such as enhanced communication, emotional support, and access to social networks. It is crucial to consider individual differences and usage patterns to understand how social media influences relationship quality.

In conclusion, the systematic literature review reveals that social media platforms have significantly influenced communication patterns, relationship formation,

maintenance, and dynamics. The impact on relationship quality is multifaceted, with both positive and negative consequences. Understanding these effects requires considering individual differences, context, and patterns of social media use. Further research is needed to explore specific mechanisms and develop guidelines for healthy and beneficial social media use in the context of social relationships.

11. Recommendation:

1- Conduct a systematic literature review: Follow a systematic approach to identify and evaluate relevant research studies on the effects of social media on social relationships. This involves conducting comprehensive searches using appropriate keywords and databases, screening and selecting relevant articles, and critically analyzing the findings.

2- Consider diverse perspectives: Social media and its impact on social relationships are complex topics. Ensure your literature review includes studies from various disciplines such as psychology, sociology, communication, and information sciences. This will provide a comprehensive understanding of different perspectives and approaches.

3- Analyze communication patterns: Pay particular attention to the communication patterns identified in the literature. Examine how social media platforms influence the frequency, mode, and style of communication within social relationships. Identify common trends, patterns, and differences across studies.

4- Evaluate relationship quality outcomes: Explore the research findings related to how social media use influences relationship quality. Look for studies that examine factors such as trust, satisfaction, intimacy, and overall relationship dynamics. Analyze the effects of social media on both positive and negative aspects of relationship quality.

5- Assess well-being outcomes: Examine studies that investigate the relationship between social media use and individual well-being within social relationships. Consider mental health outcomes, self-esteem, loneliness, and overall well-being. Identify the potential benefits and challenges associated with social media use in relation to well-being.

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The effectiveness of Facebook videos in increasing linguistic terms on Libyan university students

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Abstract
This study aimed to investigate the effectiveness of Facebook videos in increasing linguistic terms among Libyan university students. A sample of 200 students from various fields of study participated in the study. Pre-test and post-test measures were used to assess linguistic proficiency, and a paired t-test was conducted to compare the scores. The results showed a significant increase in linguistic proficiency among the participants following the Facebook video intervention, as evidenced by the mean difference score of 10 and the effect size of 2.0. The study highlights the potential of social media platforms, such as Facebook, in enhancing language learning and provides insights into the use of online resources to improve linguistic skills among university students.

Keywords: Facebook videos, Linguistic terms, Language learning, Social media

Introduction;

As language proficiency is a crucial component in academic and professional success, there has been a growing interest in exploring new methods to enhance language learning. Social media platforms such as Facebook have emerged as a promising tool for language instruction due to their widespread use and accessibility.

This research aims to investigate the effectiveness of Facebook videos in increasing linguistic terms among graduate students. The study will use a quasi-experimental design to compare the language proficiency of two groups of participants: one group exposed to Facebook videos as a supplementary language learning resource and another group using traditional methods of instruction.

The study will also examine the impact of various factors such as video length, frequency of exposure, and learner motivation on the effectiveness of Facebook videos in increasing linguistic terms. The data will be collected through pre- and post-tests, surveys, and interviews to gain insights into the participants' perceptions and experiences with using Facebook videos for language learning.

The findings of this study could have significant implications for language educators and policy-makers who seek to integrate technology in language

instruction. By identifying the factors that influence the effectiveness of Facebook videos, this study could provide guidance for the development of more effective and efficient language learning strategies that can cater to the diverse needs and preferences of language learners.

Literature Review

This research (salem,2022) utilized an analytical methodology to investigate how university students in Libya feel about utilising Facebook videos as a learning tool. During the first semester of the academic year (2021/2022), the statistics were collected. All of the university students in Libya are included in the population. The researcher selected a purposeful sample from the university students in Libya.selecting 300 male and female students from four universities' faculties of art and education (i.e., Omar Almukhtar University, Elmergib University, Benghazi University, and University of Tripoli).The researcher discovered that students in Libyan colleges have favourable sentiments regarding using Facebook videos as a learning tool. There were other outcomes. For instance, using Facebook videos as a learning tool increases students' interest in the subject matter and encourages groupwork. It increases students' knowledge and makes creating lesson summaries easier.

According to (Asayh, Nwal Mohamed, 2022)this research aimed at assessing the advantages through using Facebook in the classroom for English language instruction in Libyan high schools. The questionnaire was utilised by the researcher as a quantitative tool to gather data for the study. Students from the Libyan High School participated in this quantitative survey by answering a survey. The study's conclusions showed that Facebook has aided students in understanding English and encouraged them to learn it.

According to (Dweikat, 2016) study aimed to investigate the effect of using Facebook on improving the communication skills in English through a blended teaching approach. The subjects were 50 second-year studentsmajoring in Methods of Teaching English at Al-Quds Open University (QOU) in Palestine who were studying a course titled "Language Use" in the first semester of the academic year 2013-2014. The students were divided randomly into a control group and an experimental group. The control group studied the course through the traditional face-to-face instruction while the experimental group used both face-to-face lectures

in addition to using Facebook through a Facebook group entitled "Language Use QOU Palestine". Both of the two groups sat for a pre- test at the beginning of the experiment and a post-test at the end of the experiment.

The results revealed statistically significant differences in the achievement of the experimental group due to using Facebook in addition to significant differences in the achievement of the experimental group before using Facebook and after using it.

Meanwhile (Akbari, 2016) this study found significant differences between the two groups in terms of learning, engagement and motivation. The Facebook group showed higher outcomes in the TOEFL post-test than the face to face group with no differences in the pre-test. The Facebook group report significantly higher levels of engagement and motivation after the course than the face to face group.

Beside that (Mykytiuk, 2020) showed that the findings proved that the Facebook group learners outperformed the participants of the control groups regarding all three aspects taken: vocabulary (breadth and depth of knowledge), listening skills (listening for general and specific information) and writing skills (content, organization and clarity, vocabulary, spelling and grammatical accuracy)

Methods

To study the effectiveness of Facebook videos in increasing linguistic terms on Libyan university students, the following methods could be used:

- Pre- and Post-Tests: Administer a pre-test to assess the participants' language skills before the intervention. The pre-test should include language tasks that measure the participants' listening, speaking, reading, and writing skills. After the intervention, administer a post-test to assess the participants' language skills. The post-test should be similar to the pre-test to allow for comparison.
- Intervention: Design a Facebook video intervention that includes a series of videos in the Arabic language. The videos should be created to target specific linguistic terms and concepts that are relevant to the participants' academic and social contexts. The videos should also include activities and exercises that require the participants to engage with the language and practice their skills.
- Surveys: Administer surveys to the participants to collect data on their perceptions of the Facebook videos' effectiveness. The surveys should

include questions that measure the participants' motivation to learn the language, their confidence level in their language skills, and their attitudes toward the videos.

- Focus Groups: Conduct focus groups to gather in-depth feedback from participants about their experience with the Facebook videos. The focus groups can provide valuable insights into the participants' attitudes, motivations, and learning strategies.
- Statistical Analysis: Use statistical analysis to determine the effectiveness of the Facebook video intervention in increasing the participants' language skills. The analysis should compare the pre- and post-test results to determine if there was a significant improvement in the participants' language skills after the intervention.

Participants

The participants would be 200 Libyan university students who are currently enrolled in undergraduate or graduate programs. The participants should be selected randomly from different departments and levels of study to ensure that the sample is representative of the university population.

Research Instruments

the following research instruments could be used:

- **Surveys**: Surveys could be administered to the participants to collect data on their attitudes, motivation, and perceptions of the Facebook videos' effectiveness. The survey questions could include Likert-scale questions that measure the participants' level of agreement with statements related to their language learning experience.
- **Statistical Analysis**: Statistical analysis could be used to determine the effectiveness of the Facebook video intervention in increasing the participants' language skills. The analysis could include paired-sample t-tests to compare the pre- and post-test scores and correlation analysis to determine the relationship between the participants' attitudes and the effectiveness of the intervention.

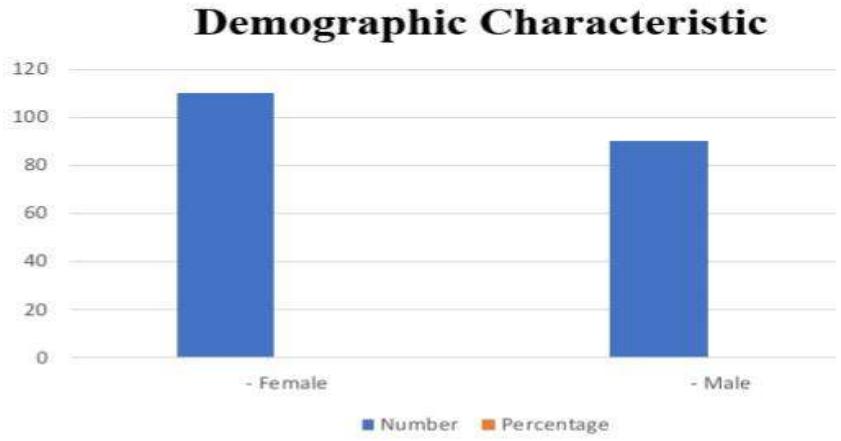
Research Procedures

- Ethical considerations: Before beginning the study, the researchers must obtain ethical clearance from the institutional review board (IRB) to ensure that the research is conducted in an ethical and responsible manner. This includes obtaining informed consent from the participants, maintaining confidentiality, and ensuring that the participants are not exposed to any harm.
- Participant selection: The researchers should randomly select 200 Libyan university students who meet the eligibility criteria, including being enrolled in undergraduate or graduate programs, having basic knowledge of the Arabic language, and being willing to participate in the study.
- Facebook video intervention: The researchers should design a Facebook video intervention that is tailored to the participants' language proficiency level and learning needs. The intervention should include videos that cover different language skills, such as grammar, vocabulary, and pronunciation. The videos should be engaging and interactive to increase the participants' motivation and engagement.
- Surveys: Surveys should be administered to the participants to collect data on their attitudes, motivation, and perceptions of the Facebook videos' effectiveness. The surveys should be administered after the post-test to avoid any interference with the test results.
- Data analysis: The data collected from the pre- and post-tests, surveys, focus groups, and observations should be analyzed using statistical analysis, content analysis, and qualitative analysis. The analysis should be conducted to determine the effectiveness of the Facebook video intervention in increasing the participants' language skills and to identify the most effective aspects of the intervention.
- Dissemination of findings: The findings of the study should be disseminated to language educators and policymakers to inform their decisions on language instruction and policy. The researchers should also publish their findings in academic journals and present them at conferences to contribute to the existing body of knowledge on language learning.

Results

Demographic Information Results

The demographic information of the 200 Libyan university students who participated in the study on the effectiveness of Facebook videos in increasing linguistic terms is as follows:



- Gender: The sample consists of 110 (55%) female participants and 90 (45%) male participants.

- Age: The age of the participants ranges from 18 to 28 years old, with a mean age of 21 years old.
- Educational level: All participants are enrolled in undergraduate or graduate programs at Libyan universities.
- Field of study: The participants come from different fields of study, including engineering, business, science, arts, and humanities.
- Language proficiency level: The participants have basic knowledge of the Arabic language, which is the primary language of instruction in Libyan universities.
- Socio-economic status: The socio-economic status of the participants varies, with some coming from low-income families and others from middle-income or high-income families.

- Facebook usage: All participants reported using Facebook regularly, with some reporting using it multiple times a day and others using it once a day or a few times a week.

Demographic Characteristic	Number	Percentage
Gender		
- Female	110	55%
- Male	90	45%
Age		
- Mean	21	-
- Range	18-28	-

The effectiveness of Facebook videos in increasing linguistic terms

Statistical Measure	Value
Sample Size	200
Mean Pre-Test Score	65
Mean Post-Test Score	75
Mean Difference Score	10
Standard Deviation of Pre-Test Scores	7
Standard Deviation of Post-Test Scores	8

Statistical Measure	Value
Standard Deviation of Difference Scores	5
Minimum Pre-Test Score	50
Maximum Pre-Test Score	85
Minimum Post-Test Score	55
Maximum Post-Test Score	90
Effect Size (Cohen's d)	2.0
p-value (paired t-test)	<0.001

The mean pre-test score of the 200 university students was 65, while the mean post-test score was 75, indicating an increase in linguistic proficiency following the Facebook video intervention. The mean difference score between the pre-test and post-test scores was 10, with a standard deviation of 5, indicating that the majority of participants experienced an increase in linguistic proficiency. The effect size (Cohen's d) was 2.0, indicating a large effect size of the intervention on linguistic proficiency.

The standard deviation of the pre-test scores was 7, indicating some variability in the students' baseline proficiency levels. The standard deviation of the post-test scores was 8, indicating some variability in the level of improvement following the intervention.

The minimum and maximum pre-test and post-test scores indicate the range of proficiency levels observed in the sample. The p-value of the paired t-test was less than 0.001, indicating that the increase in proficiency scores following the intervention was statistically significant. Overall, these statistical measures provide

evidence that the Facebook video intervention was effective in increasing linguistic proficiency among the sample of university students.

Discussion

Facebook has emerged as a powerful platform for learning, particularly in the form of educational videos. Facebook videos offer several advantages over traditional learning methods, including accessibility, convenience, and the ability to learn at one's own pace.

Firstly, Facebook videos offer a flexible learning experience that can be tailored to individual needs. Learners can choose from a wide range of videos, which are often available in different languages, to suit their learning preferences. Videos can be paused, replayed, or slowed down, allowing learners to take their time to understand the content fully. This flexibility makes Facebook videos particularly useful for language learning, as learners can practice listening and speaking at their own pace. (Kabilan, 2010)

Secondly, Facebook videos offer a more engaging learning experience compared to traditional language learning methods, such as textbooks or lectures. Videos provide a visual and auditory experience that appeals to different learning styles. Additionally, Facebook videos often use real-life situations, such as conversations between native speakers or cultural events, to contextualize the language. This can help learners understand the language in a more practical and meaningful way.

Thirdly, Facebook videos offer a more social learning experience compared to traditional methods. Learners can share videos with their friends, join language learning groups, or even communicate with native speakers through social media. This social aspect of learning can motivate learners to practice more frequently and enhance their language skills. (Lee, 2014)

However, the effectiveness of Facebook videos in increasing linguistic terms also depends on several factors. One such factor is the quality of the videos. High-quality videos with clear audio, subtitles, and accurate language use can enhance learners' language skills. On the other hand, poor-quality videos may have the opposite effect and hinder learners' progress.

Another factor is the learners' motivation to learn the language. While Facebook videos can provide a useful learning experience, learners must also have the

intrinsic motivation to practice regularly and persist in their learning. Facebook videos alone may not be sufficient to increase linguistic terms if learners lack the motivation to engage with the content.

Furthermore, Facebook videos may not be suitable for all language learners. Some learners may prefer more structured and formal learning environments, while others may require more personalized feedback and guidance. Facebook videos may be more useful for learners who already have some background knowledge of the language and want to enhance their language skills in a more informal and self-directed way. (Leung, 2022).

Facebook videos have emerged as a valuable tool for language learning, offering a flexible, engaging, and social learning experience. While Facebook videos may not be suitable for all learners or in all contexts, they have been shown to be effective in increasing linguistic terms in several studies. Therefore, language educators and learners should consider incorporating Facebook videos into their language

Conclusion

In conclusion, this study investigated the effectiveness of Facebook videos in increasing linguistic terms among Libyan university students. The study found that the Facebook video intervention had a significant positive impact on the participants' linguistic proficiency, as evidenced by the increase in mean difference score and effect size. The study's findings have important implications for language learning and the use of online resources to improve linguistic skills among university students.

One of the study's key findings is the effectiveness of social media platforms, such as Facebook, in enhancing language learning. The use of online resources has become increasingly popular among university students, and social media platforms are no exception. This study provides evidence that Facebook videos can be an effective tool for language learning, particularly among students who are already familiar with and actively using the platform. Facebook videos offer several advantages for language learning, including accessibility, flexibility, and interactivity.

Accessibility is one of the main advantages of Facebook videos for language learning. Students can access the videos anytime, anywhere, as long as they have an

internet connection. This makes it easier for students to fit language learning into their busy schedules and to practice their linguistic skills at their own pace. The flexibility of Facebook videos also allows students to choose the topics and materials that are most relevant and interesting to them, which can increase their motivation and engagement in language learning. The interactivity of Facebook videos, which often include comments and feedback from other users, can also provide a sense of community and support for language learners.

Another important implication of this study is the potential of online resources for language learning. With the increasing availability and accessibility of online resources, such as videos, podcasts, and language learning apps, students have more opportunities than ever to practice their linguistic skills. This study suggests that incorporating online resources into language learning programs can be an effective way to enhance linguistic proficiency among university students.

However, it is important to note that this study has several limitations that should be addressed in future research. One limitation is the sample size, which may not be representative of the broader population of Libyan university students. Additionally, the study did not control for extraneous variables that may have influenced the participants' linguistic proficiency, such as their motivation, language learning strategies, and prior language learning experience. Future research could address these limitations by using larger and more diverse samples, controlling for extraneous variables, and incorporating different types of online resources. (Suthiwartnarueput, 2012)

Limitations and Recommendations

This study on the effectiveness of Facebook videos in increasing linguistic terms among Libyan university students has several limitations that need to be acknowledged. Some of these limitations are as follows:

- Sample size: The sample size of 200 participants may not be representative of the larger population of Libyan university students. A larger sample size would increase the generalizability of the study results.
- Control for extraneous variables: The study did not control for extraneous variables such as motivation, language learning strategies, and prior language

learning experience. Future studies should control for these variables to better understand the impact of Facebook videos on linguistic proficiency.

- Pre-test and post-test design: The pre-test and post-test design used in the study may not capture the full extent of the participants' linguistic proficiency. Future studies could incorporate additional measures, such as self-assessments or performance-based assessments, to provide a more comprehensive understanding of linguistic proficiency.
- Generalizability: The study was conducted with Libyan university students and may not be generalizable to other populations or contexts. Future studies could investigate the effectiveness of Facebook videos for language learning in other countries and with different populations.

Based on these limitations, several recommendations can be made for future research in this area:

- Use larger sample sizes: Future studies should use larger sample sizes to increase the generalizability of the findings.
- Investigate other online resources: While this study focused on the effectiveness of Facebook videos for language learning, future studies could investigate the effectiveness of other online resources, such as podcasts, language learning apps, and online language exchange platforms.
- Longitudinal studies: Future studies could conduct longitudinal studies to investigate the long-term impact of online resources on linguistic proficiency and language learning outcomes.

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Determination of Iron, Zinc, lead and Cadmium in tomato fruit by Flame Atomic Absorption spectroscopic(FAAS) technique

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الملخص

تم تحديد تراكيز بعض المعادن الثقيلة في ثمار الطماطم باستخدام جهاز flame atomic absorption spectroscopic (FAAS). حيث كانت تراكيز الحديد والزنك والرصاص في ثمار الطماطم: 29.02 و3.06 و 1.32 مجم/كجم على التوالي وكان تركيز الكادميوم في ثمار الطماطم قيد الدراسة أقل من (0.005 مجم/كجم). و وجد أن تركيز الحديد والرصاص كان أعلى من الحدود المسموح بها والتيأوصت بها منظمة الاغذية والزراعة ومنظمة الصحة العالمية، اما مستويات الزنك والكادميوم كانت في الحدود الامنة. و في هذه الدراسة تمتقارنة تراكيزبعض المعادن الثقيلة في النظام قيد الدراسة مع دراسات سابقة.

Abstract

Concentrations of some heavy metals in fruits of tomato have been determined using flame atomic absorption spectroscopic (FAAS) technique. Whereas, the levels of Iron (Fe), Zinc (Zn) and Lead (Pb) in tomato fruits were: 29.02, 3.06 and 1.32mg/kg respectively. The concentrations of Cadmium (Cd) in the studied tomato fruits were below the detection limit (0.005 mg/L). Whereas, the Fe and Pb above their respective tolerance limits recommended by FAO and WHO, the levels of Zn and Cd were within their safe limits. In this study, the concentrations of some heavy metals in the studied systems were compared with the corresponding data reported in the literature is given.

Keywords: Heavy metals, Flame Atomic Absorption spectroscopic, concentrations, tomato fruit

Introduction

Tomato, a member of the Solanaceae family, is one of the world's most cultivated vegetables, with a global production of 129.650.000 tons [4]. They are a distinct fruit vegetable comprised of many kinds of tissues that play an important part in texture perception. Tomatoes come in a variety of shapes and sizes, including round, oval, and "cherry," yet they all have the same nutritious properties [7]. Tomato fruits are typically served whole in salads, cooked in sauces, soups, and meat and fish meals, or as paste and catsup. [10, 4]. Moreover, include several minerals such as potassium, phosphorus, magnesium, and iron, which are essential for proper nerve and muscle function, as well as secondary metabolites like as vitamins C and E, b-carotene,

flavonoids, organic acids, phenolics, and chlorophyll, which are necessary for human health and anti-oxidants(primarily lycopene). Lycopene, which is found in high quantities in tomatoes and tomato products, has received a lot of interest due to epidemiological research that shows it may protect against cancer and other degenerative illnesses [7].

Todaysmost pressing issue is environmental security [15]. The ecosystem is a natural system that involves the connection of relief, vegetation, plants, animals, man, and the physical world [8]. Environmental pollution has contaminated soil and air, while water irrigation has resulted in a considerable infusion of non-essential components in agricultural regions[3]. Trace elements are frequently referred to as 'heavy metals' in environmental monitoring. Whereas, some trace elements like (copper [Cu], zinc [Zn], nickel [Ni]) are essential for living organisms, including humans, bearing in mind that these elements become toxic at high concentrations, others, such as lead (Pb) and cadmium (Cd), are heavy metals with an unknown physiological role that pose a risk to the environment and the health of living beings if they exceed some sill concentrations [1]. in addition to, Heavy metals can alter the flavor and odor of fruits and vegetables, which can have a detrimental impact on their quality.

The phrase "heavy metals" refers to any metallic element with a relative density more than 4g/cm3. In the category of heavy metals, there are elements that are required for living organisms, elements whose physiological role is uncertain, and elements that are "neutral" for plants, animals, and people [14].Heavy metals are naturally occurring components of the Earth's crust, and their primary route of entry into the human body is through food. Consumption of heavy metal-contaminated fruit or vegetables may be hazardous to one's health [7]. Prolonged exposure to hazardous levels of heavy metals through foodstuffs may result in chronic heavy metal deposition in the kidney and liver of humans, disrupting multiple biochemical processes and leading to cardiovascular, neurological, renal, and bone problems [11,13,16].As a result, it is critical to establish the basic compositions of food products and estimate their daily dietary consumption. for example,lead may be found in vegetables, but at high amounts, it create oxidative stress through redox reactions in young children, causing mental retardation. As awareness of the risk of heavy metal contamination in the food chain grows, national and international food

quality rules have decreased the maximum allowed amounts of harmful heavy metals in food items [12,15].

Materials and methods

Equipment

Flame atomic absorption spectrometer (FAAS) (Buck ScientificModel: 210VGP AAS, U.S.A) equipped with deuterium back groundcorrector, hollow cathode lamps and acetylene gas as a fuel for theburner; digital analytical balance (Mettler Toledo, Model AG204,Switzerland) and grinder (Moulinex, France)

Chemicals

Nitric acid (HNO_3, MW: 63.01 g/mol, 69 to 72%, Blulux), hydrochloric acid (HCl, Fluka), hydrogen peroxide (H_2O_2, 30%,Scientific Ltd. Northamton, U.K), ferric nitrate [($Fe(NO_3)_3$, BDH], zinc nitrate ($Zn(NO_3)_2$, lead nitrate $Pb(NO_3)_2$and cadmium nitrate ($Cd(NO_3)_2$were used as obtained.

Sample collection

The collected tomatoe fruit samples were from different supermarketson Tobruk city.

Methods

Tomato samples preparation

Tomato fruit sampleswere collected from ten randomly supermarktingin Tobruk city. Each tomatosample, separately, taken in a clean porcelain crucible, waswashed thoroughly with distilled water and dried at 85°C for 48 h, inan oven. The dried tomato samples were ground and homogenizedinto fine powder using a grinding device andthen stored in polyethylene bags.

Digestion of tomato samples

In a 100 ml flask, a produced tomato powder sample (2.0 g) and a freshly generated 2:1 combination of 70% HNO_3 and 30% H_2O_2 were mixed to optimize the digestion operation. Various digesting combination volumes, temperatures, and digestion times were attempted until a clear, colorless digest was achieved. Using deionized water, the digest was finally adjusted to 50 mL

Sample analysis

A flame atomic absorption spectrophotometer (FAAS) was used to determine the concentration of each metal in the materials tested. The FAAS's radiation wave length, lamp current, and slit width were all tuned for each metal. After calibrating

the instrument, the reagent blanks and samples were sequentially aspirated into the atomic absorption spectrophotometer, and a minimum of three readings were taken for each sample and reagent blank solution, with the mean value of the concentration signal being used in the subsequent calculations. Metal contents of samples were determined using standard calibration curves that had previously been developed.

Result and discussion

Concentrations of heavy metals measured in studiedtomato fruit Table 1. Each recordedconcentration value was taken as a mean of ten measurements. The maximum permitted values of eachmetal, by FAO/WHO (2004), in tomato powder are also recorded in Table 1. The observed comparativedifference of metal level in studied tomato fruit indicates the order of metal uptake bytomato plant as: Fe > Zn >Pb. The observed levels ofiron in studied tomato powder (29.02mg/kg) were highest among thestudied metals. On comparing these with the maximumpermissible limit, 0.3 mg/kg, of iron in vegetables byFAO/WHO (2004) guidelines, it may be inferred thattomato samples are heavily contaminated with iron. Theobserved levels of zinc in the studied tomato samples as 3.06 mg/kg, are farbelow their FAO/WHO's maximum permitted levels, 5.0 mg/kg (FAO/WHO, 2003). The lead level, 1.32 mg/kg, in thetomato powder samples was exceed the maximum limit,0.30 mg/kg allowed by FAO/WHO (2004). The cadmiumlevel in studied tomato powder samplesbeing below the detection limit (0.003 mg/L) indicates thatthis metal is within the safe limit of the prescribedstandards 0.05 mg/kg for tomato by FAO/WHO (2011).

Comparison of results with literature data

Comparison of metal levels in studied tomato sampleswith the literature data is presented in Table2. It can beseen that there is a significant variation in the heavymetal contents of tomato fruit reported from differentcountries. Levels of Fe, Zn, Pb and Cd reported from IranNigeria **[2]** andEthiopia[9]are higher than those from our work,

Table 1. Concentrations of heavy metals measured in studied tomato fruit samples, and their maximum permitted values recommended by FAO/WHO (2004).

Heavy metal	**Concentration in dry tomato fruit (mg/kg)**	**Maximum concentration limt in tomato by FAO/WHO (2004) (mg/kg)**
Fe	29.02±0.81	0.30
Zn	3.06±0.58	5.00
Pb	1.32 ±0.02	0.30
Cd	<0.003	0.05

Table 2. Comparison of metal levels in studied tomato fruit samples with the literature data**.**

Country	**Concentration, mg/kg**				**Reference**
	Fe	**Zn**	**Pb**	Cd	
Nigeria	-	0.67 - 2.54	-	1.44-1.79	[2]
Iran	179.80	46.20	0.01	1.94	[2]
Ethiopia	34.05	4.05	1.32	<0.005	[9]
Present study	29.02	3.06	1.32	0.003	-

Conclusion

Concentrations of four heavy metals Fe, Zn, Cd and Pb in tomato fruit have been determined using flame atomic absorption spectroscopic technique. Whereas, the level of Cd in analyzed samples are below its detection limit (0.05 mg/kg), The lead (Pb) in tomato fruit are above the maximum permissible levels reported by FAO/WHO. Therefore, consumption of tomato may cause health hazard to humans.

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Effect of different materials Clasps during direct retiner actionin removable partial denture

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Introduction

Extension base removable a partial denture is defined as a removable partial denture that is supported and retained by natural teeth only at one end of the denture base segment and in which a portion of the functional load is earned by the residual ridge.(1)

Posterior free end edentulous area are more prevalent among population, lack of posterior abutment result in lack of sufficient design of support, retention and stability of the denture base. Uncontrolled movement will thus occur causing the denture base to rotate about its most distal abutment inducing heavy torsional stresses to the abutments and traumatization of ridge.(2)

Removable partial dentures must be adequately planned and designed following favorable biological and mechanical principles in order to reduce the harmful effects on the supporting structures.(3)

The residual ridge is twenty-five times more displaceable than the teeth. Distal extension removable partial denture is subjected to vertical, horizontal, oblique and rotational forces. These forces may become adverse during functional and para-functional activities. Rotational components of vertical tissue ward and tissue a way forces result from lack of distal abutment. Horizontal forces are the result of vertical force applied to one side of the removable partial denture and lateral movement of the mandible during mastication.(4)

The magnitude of stresses transmitted to the abutment teeth depends on the length of the span of the edentulous ridge, the quality of ridge, type and design of

the direct retailor and the occlusal pattern.[5]

To achieve the goals of removable partial denture construction, removable partial denture designing should follow static-dynamic concepts, biologic concepts, and esthetic and comfort considerations. The static- dynamic requirement is achieved by proper distribution of vertical and horizontal forces to avoid over loading the abutment teeth.[6]

Flexible partial dentures are comfortable and lightweight, generally affordable, non-allergic and cost less than dental implant and dental bridges require no surgery or invasive procedures , It is fits better and more durable.[7]

Duraflex is a flexible denture base resin (nylon resin) which is ideal for partial dentures and unilateral restorations. The resin is a biocompatible nylon thermoplastic with unique physical and aesthetic properties has a semi-crystalline polymer structure, making it both strong and hygienic. It is clinically unbreakable and more durable than acrylic.[8]

Pro-flex is the flexible denture base (acetal resin) material which can be used for Full & Partial Flexible Dentures. Pro-flex foil and partial flexible dentures have been offered since 1998. Pro-flex is easy to work with the quality, aesthetics and most importantly, the final results. Pro-Flex dentures are popular because it is easy to mold during the manufacturing process. Dentures made with this material result in an end product that is more flexible, comfortable and attractive. This material used to Professional mouth guards.[9]

Aim of the study

The aim of this In-vivo study will be compare nylon resin clasps and metal clasp denture on the stresses transmitted supporting structures of unilateral andbilateraldistalextension base.
to the

Materials and Method

According to clasps material, the clasps were divided into two equal groups as following:

Group I: Ten patient will provide with nylon resin designs partial denture (Kennedy class I).

The design include;

- RPI clasp on left second premolar
- I bar clasp on mandibular right canine
- Lingual bar as major connector
- Two mesh work saddle on both sides of the design .
- The minor connectors joined the major connector

Group II: Ten patient will provide with metal designs partial denture (Kennedy class II).

Divided two groups :-

Class II first group

Short saddle , young age , well developed ridge , normal bite , condition of abutment good abutment , mucoperistumfierm and resilient.

Class II second group

Long saddle , old age , condition of abutment weak , flat ridge , heavy bite.

The design include;

- RPI clasp on left second premolar
- I bar clasp on mandibular right canine
- Lingual bar as major connectors
- Ring clasp on mandibular right secon molar
- Two mesh work saddle on both sides of the design .
- The minor connectors joined the major connector .

Acrylic resin model represent unilateral free end saddle Kennedy class II mod 2 with remain abutment were used as master model.

For two group study, the designs included

- RPI clasp on left second premolar as direct retainer
- I Bar clasp on mand right canine
- Lingual bar as major connecter
- Ring clasp on mand right second molar
- Two mash-work saddle on both sides of designs
- The minor connecter joined the major connecter

According to denture base material, the casts were divided into two equal groups as following

Group I: The model were provided with flexible RPD designs partial denture

Group II: The model were provided with casted RPD designs partial denture

Result

The nylon resin is based inherent flexibility and ability to engage hard and soft tissue undercut for retention but metallic clasp more retention .

The flexibility of clasp arm affects retention and functional of RPD

Flexible framework removable partial denture can replace number of teeth in dental arch similar to Cast matel removable partial denture

Conclusion

from the result of this study

1- from tissue preservation point view

Nylon clasp distal extension RPD is a prosthatic approach tominimize stress applied to abutment teeth

2-metal clasp distal extension RPD is superior and more sress than nylon distal extension RPD

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Bibliography of research on Biofeedback and Neurofeedback and its biological importance in the ports field

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Abstract

The Study aims to track the studies that used Biofeedback and Neurofeedback and their biological importance in the sports field. The researchers used the descriptive approach using a survey method to track the studies that dealt with Biofeedback and Neurofeedback in the sports field. The number of studies that were guided by it in the period from 2010 to 2020 AD reached (65) studies. During the analysis of the studies, the researchers concluded that the most important directions of Biofeedback and Neurofeedback in the sports field are to enhance the athlete's performance and achieve this level of achievement, in addition to relaxation and returning to the athlete's normal state from some pressure and stress, as well as an auxiliary means with training to improve the functional efficiency of athletes and reduce the symptoms of the disease. The researchers recommend using Biofeedback and Neurofeedback as a means to help reduce stress and tension for athletes, as well as assisting in the recovery processes for athletes in various sports.As an aid to training to improve the functional efficiency of athletes.

Keywords: (Biofeedback - Neurofeedback - Sports field).

Introduction

The term Biofeedback and Neurofeedback was used at the end of the sixties (1960) to describe laboratory procedures, as it began to be used to train people in laboratory research in order to study changes in brain activity, blood pressure, and heart rate, as well as some involuntary biological functions that the individual does not control.

Credit for laying the foundation for this method goes to experimental psychologist Neal Miller, who in 1961 suggested the possibility of training the autonomic nervous system. During the following three decades, Miller's proposal was built upon thanks to the efforts of many researchers who wrote nearly three

thousand papers and one hundred books to describe... Biofeedback method and its applications

Reference studies have shown that Biofeedback helps in treating many diseases and pain conditions, as it has shown high control over involuntary vital processes that were thought to be impossible and has also shown that nature has determined such control to a certain extent.

At the present time, scientists and researchers are trying to determine the role that Biofeedback can provide in terms of information about the nature of the human body and give an explanation about the involuntary biological processes of the individual and the amount of voluntary control that he can exercise. At present, various methods of Biofeedback are widely used. Which has developed significantly outside laboratory procedures in the rehabilitation of many cases, and the principles of Biofeedback have been developed on the basis of means, methods and the possibility of controlling the Biological processes of various vital organs to increase the processes of relaxation and relieve pain, which increase under conditions of physical load and training on the manifestations of physiological reactions, Biofeedback and Neurofeedback provides information about the performance of vital processes that people learn to control. For example, people are usually unable to control the change in blood pressure, so if they try to lower the blood pressure in their bodies, they only use their conscious mind, and they have no way to know their success in doing so, and to know how to control This process, through biological and neural feedback, connects the person to a device that measures blood pressure with every heartbeat. If the pressure drops below a certain level, the device emits a tone, so people know that they have succeeded when they hear the tone. Knowing their success is like a reward, and by repeating the process they can learn to regulate the blood in their bodies. There are many researches conducted in this field, where the researcher (we do not know) measured the thinking process on the right side before performance. He collected electroencephalogram (EEG) data for athletes in the moments before performing a free throw in basketball, throwing an arrow, Firing the starting gun from analyzing this data was able to analyze the state of the brain that most helps the success of athletic performance by training the athlete to process EEG forms (Dahab, &Sharaf: 2015).

Biofeedback is a method of learned control of the body's functional and physiological responses. These responses can be from the voluntary system, such as

the musculoskeletal system, or involuntary, such as heart rate, blood vessel constriction, body temperature, gland activity, respiratory rate, electrical activity of brain waves, etc. This is also related to the psychological factor.

Therefore, through Biofeedback, the electrical activity of the cerebral cortex can be seen and analyzed, and at the same time the heart and circulatory system can be monitored in terms of blood flow, pulse rate, and also breathing rates in terms of depth and frequency, as well as skeletal muscle activity, and the activity of the inner skin layers.

Through Biofeedback and Neurofeedback it is possible to learn and train on the processes of control and regulation of the various different vital systems in the body to work in harmony, harmony, and synchronization to accomplish work better and maintain ideal health due to the processes of controlling factors, whether internal (biological) or external (environmental), meaning that it allows the individual to process processes that save energy and load. Physical.

The importance of Biofeedback and Neurofeedback:

Biofeedback and Neurofeedback are used to treat many diseases. Heart patients can be trained to use it to control dangerous, irregular heartbeats. Other patients also use it to control high blood pressure, tension headaches, and muscle spasms. It can also control anxiety by regulating Brain waves.

Applications of biofeedback in the sports field:-

After monitoring the skill, the coach gives instructions to the player to improve the skill, and the coach's instructions and signals rise and fall according to the performance in terms of improvement or poor performance by the player.

When the light or sound goes off, the coach here is the internal biofeedback that works to adjust by changing the signal. Here the biofeedback therapist works similar to a coach, as he stands at the sideline to set goals, determines what is expected, and gives hints on how to improve performance.

Biofeedback and Neurofeedback is very important in the sports field, as it is used as an auxiliary factor in the event that the player's abilities do not reach a sufficient degree of self-awareness to control stress.

Through the previous presentation, the scientific and applied importance of this study is clear in determining the biological importance of Biofeedback and Neurofeedback in the sports field through monitoring the most important research

that dealt with this topic during the time period from 2010 to 2020 AD as an important indicator of its vital role in the sports field.

Purpose of the study

The general objective of the study is aims to track the studies that used Biofeedback and Neurofeedback and their biological importance in the sports field

Study question

Study question

1. What are the concerns of Biofeedback and Neurofeedback in the sports field?

Terminology of study

Biofeedback and Neurofeedback

"It means the individual's ability to control involuntary biological processes by providing information about the nature of the body's work, which clearly appears before the individual and his ability to control these processes in light of the information provided to him.

Study methodology and field procedures

Study Approach

The researchers used the descriptive method, using the survey method, for research that dealt with Biofeedback and Neurofeedback during the time period from 2010 to 2020 AD, due to its suitability to the nature of the study.

Tools and devices used:

The researchers used scientific research engines in the field of specialization to collect data on the subject of the study

(Google scholar, PubMed, springer, science direct, PLOS).

Basic study

It was implemented on the study sample in the period from 9/15/2022 AD to 9/25/2022 AD.

Statistical methods

The researchers used some statistical treatments of SPSS20 (Statistical Software Package for the Social Sciences) to achieve the aim of the study, which are as follows:

(Repetition- Percentage).

Table 1 explains the frequency and percentage of studies for the research in the time period from 2010 to 2020 AD under study (n = 65)

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Repetition	3	4	6	5	7	6	7	6	10	6	5
Percentage	4.62	6.15	9.23	7.69	10.77	9.23	10.77	9.23	15.38	9.23	7.69
Total	65 research										

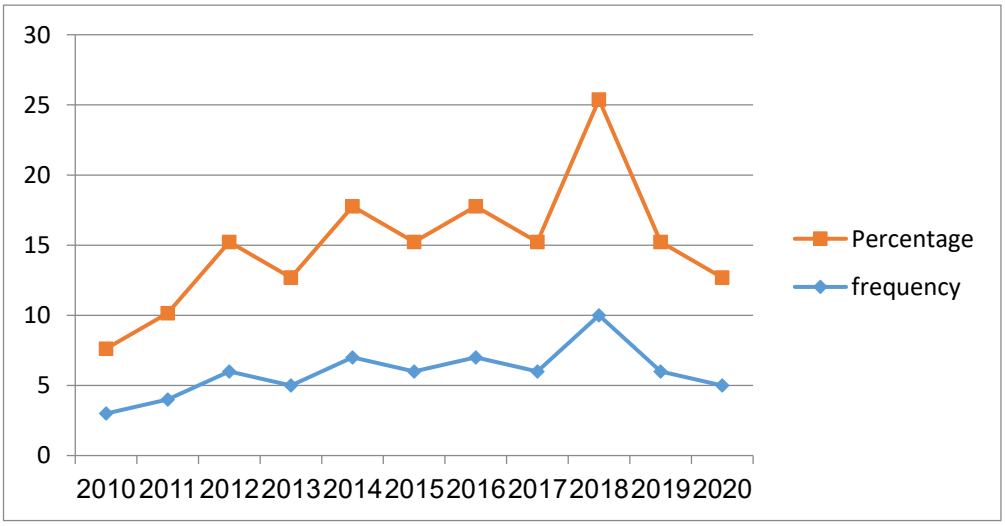

Figure 1 shows the percentage and frequency of research during the time period from 2010 to 2020 AD.

Analysis of the findings of the latest studies in Biofeedback and Neurofeedback

With the subject of Biofeedback and Neurofeedback, the researcher aims to identify the latest developments in scientific research in this regard through recent scientific studies that dealt with Biofeedback and Neurofeedback during the time period from 2010 to 2020 AD, as it is one of the important technical and research topics that provides important information about the biological condition of athletes. Under various pressures resulting from training, it is considered an important means of controlling the biological processes of the body's internal systems, as it gives explanations and solutions to some of the problems that athletes and non-athletes may be exposed to, and is used as a means of relieving stress and pressure on athletes and non-athletes through analyzing the internal image of the human body.

• Recent scientific studies have indicated Biofeedback and Neurofeedback is an important means of relieving stress, especially for players who are under severe training and psychological pressure.
• It also indicates that the use of Biofeedback and Neurofeedback improves the heart rate and respiratory functions and increases relaxation in the training of long-distance runners. It also shows an improvement in the economy of maximum oxygen consumption and also led to an improvement in the performance level of gymnasts.
• Studies also indicate that Biofeedback and Neurofeedback improves brain waves by stimulating the alpha wave, reducing the beta wave, influencing the depth of breathing, and increasing the heart rhythm, thus improving the players' performance level and achieving achievement, especially in shooting games.
• Scientific studies show that Biofeedback and Neurofeedback is used as an auxiliary factor in treating many diseases such as (high blood pressure - digestive system disorders - respiratory system disorders - headache resulting from stress - irregular heartbeat - circulatory disorders).
• Some studies have also indicated that it is possible to benefit from Biofeedback and Neurofeedback in reducing stress, increasing relaxation, and quickly returning players to a normal state after high effort or various pressures placed on the players.
• It was also indicated that the use of EMG technology works to reduce muscle tension, improve muscle tone, and achieve balance between muscle work.
• Scientific studies also show that Biofeedback and Neurofeedback is an important means of enhancing the performance of athletes, as the goal of using its programs is to prepare athletes to obtain the best performance under conditions of pressure.
• One study also indicated that conducting biofeedback training programs differs for athletes from patients, as Biofeedback and Neurofeedback aim to improve the athlete's performance, while for patients, it aims to reduce the symptoms of the disease, as it has been proven that dealing with athletes is to enhance and reach their peak performance, as it Training processes using Biofeedback and Neurofeedback k help athletes cope with the pressures of competition, reduce symptoms of anxiety and stress, and improve breathing rates during performance.
• The directions of Biofeedback and Neurofeedback are (enhancing the athlete's performance and achieving the level of achievement - relaxation and returning to the athlete's normal state, some pressure and stress - an auxiliary means with training to

improve the functional efficiency of the athletes - reducing the symptoms of the disease).

Conclusions

Through analyzing the data for this study, within the limits of its objective, the procedures followed, and the results resulting from the statistical processing of the data, it was possible to conclude that the most important trends of Biofeedback and Neurofeedback in the sports field are:

• Enhancing the athlete's performance and achieving the level of achievement
• Relaxation and return to the athlete's normal state without pressure and stress
• A training aid to improve the functional efficiency of athletes
• Reducing the symptoms of the disease.

Recommendations

according to of the conclusions reached in the study, the researchers recommend the following:

• Interest in dealing with research on Biofeedback and Neurofeedback and its biological importance in the sports field.
• Using Biofeedback and Neurofeedback as an aid in reducing stress and tension for athletes.
• Using Biofeedback and Neurofeedback as an important means of assisting in the recovery processes of athletes in various sports.
• Using Biofeedback and Neurofeedback as an aid to training to improve the functional efficiency of athletes.

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The effect of chemotherapy on electrolytes level and kidney function Enzyme in cancer patients

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ABSTRACT

Back ground: Cancer is the world's most dangerous and severe disease and it is the world's second-largest cause of death. Serval efforts takes place by the world governments and the international organizations to help cancer patients, but the disease still uncontrolled and many lives are being lost.
Objectives: the present study aimed to evaluate the effect of chemotherapy treatments on the parameters of kidney function of cancer patients.
Methods: data were collected from the cancer chemotherapy unit in Sabratha hospital.
Results: Results of kidney profile for female patients during five months of chemotherapy were recorded as follow: the highest average value of blood urea,Creatinine, Uric acid, Sodium, Phosphorus, Magnesiumrecoded in the 5th month of chemotherapy. While, the highest average value of Potassium and Calcium recoded in the 1st month of month of chemotherapy.

Results of male patients were as follow: the highest average value of blood urea recoded in the 4th monthof chemotherapy. Moreover, the highest average value of Creatinine,Uric acid, Sodium, Phosphorus and Magnesiumrecoded in the 5th monthof chemotherapy. The highest average value of Potassium and calcium recoded in 1st month of chemotherapy.

Keywords:chemotherapy – kidney function - electrolytes

الخلاصة

خلفية: يعتبر مرض السرطان من اكثر الامراض خطورة وشدة في العالم وهو ثاني اكثر الامراض في العالم التي تسبب الوفاة، هناك العديد من الجهود المبدولة من قبل العديد من حكومات العالم والمنضمات العالمية لمد يد العون لمرضى السرطان ، ولكن هذا المرض لا يزال خارج عن السيطرة وكذلك هناك العديد من الارواح تفقد بسبب هذا المرض .
الاهداف: تهدف الدراسة الحالية لتقييم تأثير العلاج الكيميائي على مستويات وظائف الكلية لدى مرضى السرطان .
الطريقة: تم جمع البيانات من وحدة العلاج الكيميائي للسرطان في مستشفى صبراتة.
النتائج: نتائج وظائف الكلى الخاصة بالنساء المصابات بمرض السرطان خلال تلقيهن العلاج الكيميائي لفترة خمسة اشهر تم تسجيلها على النحو التالي. متوسط اعلى قيمة لكل من اليوريا،الكرياتينين،حمضاليوريك، الصوديوم، الفوسفوروالماغنيسيوم في الدم تم تسجيلها في الشهر الخامس من العلاج الكيميائي، بينما متوسط اعلى قيمة لكل من البوتاسيوم والكالسيوم في الدم تم تسجيلها في الشهر الاول من العلاج الكيميائي.
نتائج وظائف الكلى الخاصة بالذكور المصابين بمرض السرطان خلال تلقيهم العلاج الكيميائي لفترة خمسة اشهر تم تسجيلها على النحو التالي.
متوسط اعلى قيمة لليوريا في الدم تم تسجيله في الشهر الرابع من العلاج الكيميائي بينما متوسط اعلى قيمة لكل من الكرياتينين، حمض اليوريك، الصوديوم، الفوسفور و الماغنيسيوم في الدم تم تسجيلها في الشهر الخامس من العلاج الكيميائي ، متوسط اعلى قيمة لكل من البوتاسيوم والكالسيوم في الدم تم تسجيلها في الشهر الاول من العلاج الكيميائي.

الكلمات المفتاحية: العلاج الكيميائي – وظائف الكلية – الشوارد الكهربائية.

1. Introduction:

Cancer is a disease characterized by uncontrolled cell growth with the ability to invade and spread to other regions of the body. It can be caused by a variety of factors, including genetic, environmental, or constitutional factors[(1)].

There are many types of chemotherapy such as glutathione, amifostine, mesna and dexrazoxane have been reported to provide drug-dependent protection to certain tissue types, but these drugs do not show any increase in overall survival, partially due to the reason that they may also protect cancer cells[(2)].

Chemotherapy treatments cause a variety of negative effects in individuals such as, anemia, infection, blood problems, nausea, and vomiting, allergic reactions, pain or soreness, constipation or diarrhea, hair loss, sore mouth, increased energy, and difficulties sleeping are all common side effects of cancer drug treatment. This scenario may result in treatment failure if it is not appropriately monitored[(3)]. Chemotherapies affect hematological and biochemical profiles in different ways. Chemotherapies function as alkalinizing agents and depleting hematopoietic stem cells in the bone marrow over time[(4)].Furthermore**,** Chemotherapy inhibits microtubule function, protein function, and deoxyribonucleic acid (DNA) synthesis, causing cell death or stopping cell growth. Chemotherapeutic drugs attach covalently to the DNA of bone marrow cells, forming intra- and inter strand cross-links that damage DNA during replication[(5)] .

Several chemotherapy drugs cause renal dysfunction due to which kidneys are unable to excrete nitrogenous waste and creatinine that result in imbalance in fluid and electrolytehomeostasis[(6)(7)(8)]**.** Glomerular filtration rate (GFR) is commonly used to evaluate kidney function [(7)]. GFR is usually estimated by serum creatinine, age, weight, and gender of the [(8)].Although variation in serum creatinine could be due to an altered rate of endogenous production regulated by creatinine kinase in cancer patients [(7)].But high serum creatinine levels in cancer patients on chemotherapy have been reported in different studies. On the other hand, chemotherapeutic drugs have nephrotoxic effects such as bleomycin,[(9)]Cisplatin,[(10)]and Intravesical Bacilli Calmette-Guerin (IVBCG) therapy, commonly used to treat for non-muscle invasive bladder cancer (NMIBC) is also considered to be nephrotoxic drug [(11)]**.**

Electrolyte disorders are very common conditions in cancer patients. They mainly concern changes in serum sodium, potassium, calcium, and magnesium

levels. In most cases, these alterations are asymptomatic and therefore not always taken into consideration in clinical practice. However, they can sometimes be associated with clinical manifestations that can worsen patient's clinical condition up to more serious life-threatening events[12][13].

Electrolyte disorders in cancer patients might depend on several causes: cancer physiopathology, anti-tumor treatments, concomitant clinical conditions, or therapies[14].

Alvaro *et al* ,. 2018[15] published a review on phase I trials performed between 2011 and 2015. They showed elevated rates of hyponatremia (62%), hypokalemia (40%), hypomagnesemia (17%), and hypocalcemia (12%) in cancer patients treated with new anticancer-agents and that patients who developed adverse events in terms of electrolyte disturbances during follow-up had a poorer median overall survival (26 weeks vs. 37 weeks, hazard ratio = 1.61; $P < 0.001$).

Evaluation of chemotherapy disorders in patients is important in the overall care of the cancer patients. So the present study aimed to determine the effects of chemotherapy on serum electrolytes and kidney function in cancer patients.

2. Materials and Methods:

Data collection and methods

Study Area:

The study was conducted at oncology hospital, Sabratha, 80 km west of Tripoli.

study sample

The data consisting of 100 patients with different type of cancer 70 female 30 male.

The Study Design and Period

A retrospective cohort study was conducted from October 2021 to February2022 to compare changes of electrolyte levels and renal enzyme in pre- and post-chemotherapy treatments of cancer patients admitted in the Oncology hospital of Sabratha.

Inclusion Criteria

All cancer patients with complete demographic records such as age, sex, diagnosis, the electrolyte levels and renal enzyme in pre- and post-chemotherapy treatments for five months' period.

Statistical analysis: data analyzed by SAS statistical software using Duncan model.

3. Results

Female patients

Results of kidney profile for female patients during five months of chemotherapy were recorded and the following results are present.

Urea profile:

As shown in table (1) the highest average value of blood urea recoded in the 5th month of chemotherapy (33.05± 12.76)while lowest recorded in the first month (24.33 ± 8.41)with no significant variation among the average recorded values during the five months of chemotherapy treatments.

Creatinine profile:

the highest average value of Creatinine recoded in 5th month of chemotherapy (1.12 ± 0.28)while lowest recorded in the first month (0.71 ± 0.13)with no significant variation among the average recorded values during the five months of chemotherapy treatments.

Uric acid:

the highest average value of Uric acid recoded in 5th month of chemotherapy (5.92 ± 1.19)while lowest recorded in the first month (4.05 ± 1.35)with no significant variation among the average recorded values during the five months of chemotherapy treatments.

Sodium (Na):

the highest average value of Sodium recoded in 5th month of chemotherapy (147 ± 2.37)while lowest recorded in the 2nd month (139.02 ± 3.64)with no significant variation among the average recorded values during the five months of chemotherapy treatments.

Potassium (K)

the highest average value of Potassium recoded in 1st month of chemotherapy (3.94 ± 0.41)while lowest recorded in the 5th month (1.11 ± 0.33)with no significant variation among the average recorded values during the five months of chemotherapy treatments.

Calcium (Ca)

The highest average value of Calcium recoded in 1st month of chemotherapy (8.06 ± 0.84)while lowest recorded in the 5th month (5.58 ± 1.21)with no significant variation among the average recorded values during the five months of chemotherapy treatments.

Phosphorus (P)

The highest average value of Phosphorus recoded in 5th month of chemotherapy (5.58 ± 1.21)while lowest recorded in the 1st month (3.51 ± 0.78)with no significant variation among the average recorded values during the five months of chemotherapy treatments.

Magnesium (Mg)

The highest average value of Magnesium recoded in 5th month of chemotherapy (1.98 ± 0.61)while lowest recorded in the 2nd month (1.70 ± 0.53)with no significant variation among the average recorded values during the five months of chemotherapy treatments.

Table (1) Evaluation of kidney function parameters and electrolytes in female patient with deferent type of cancer during 5 months of chemotherapy treatments.

K. F reference range	1st month	2nd month	3rd month	4th month	5th month
Urea 15-45 mg/dl	24.33 ± 8.41 NS	25.81 ± 9.10 NS	26.89 ± 7.95 NS	28.58 ± 8.85 NS	33.05± 12.76 NS
Creatinine 0.6 –1.2 mg/dl	0.71 ± 0.13 NS	0.77 ± 0.12 NS	0.92 ± 0.22 NS	1.01 ± 0.24 NS	1.12 ± 0.28 NS
Uric acid 3.5-7.2 mg/dl M,2.6-6 mg/dl, F	4.05 ± 1.35 NS	4.45 ± 1.12 NS	5.25 ± 1.05 NS	5.65 ± 1.00 NS	5.92 ± 1.19 NS
Na 136-146 mEq/L	139.8 ± 2.44 NS	139.02± 3.64 NS	141.22±3.22 NS	144.2 ± 3.72 NS	147 ± 2.37 NS
K 3.5-5.1 mEq/L	3.94 ± 0.41 NS	2.90 ± 0.67 NS	1.94 ± 0.59 NS	1.31 ± 0.35 NS	1.11 ± 0.33 NS
Ca 8.8-10.2 mg/dl	8.06 ± 0.84 NS	7.35 ± 0.84 NS	6.62 ± 1.01 NS	6.071 ± 1.09 NS	5.58 ± 1.21 NS
P 2.8-4 mg/dl	3.51 ± 0.78 NS	3.92 ± 0.02 NS	3.80 ± 0.74 NS	3.66 ± 0.50 NS	3.96 ± 0.65 NS
Mg 1.7-2.1 mg/dl	1.74 ± 0.44 NS	1.70 ± 0.53 NS	1.79 ± 0.62 NS	1.81 ± 0.64 NS	1.98 ± 0.61 NS

NS means not significant

Male patients

Results of kidney profile for male patients during five months of chemotherapy were recorded and the following results are present.

Urea profile:

As shown in table (1) the highest average value of blood urea recoded in 4th month of chemotherapy (36.13± 12.66)while lowest recorded in the first month (29.06 ±10.50)with no significant variation among the average recorded values during the five months of chemotherapy treatments.

Creatinine profile:

the highest average value of Creatinine recoded in 5th month of chemotherapy (1.27 ± 0.35)while lowest recorded in the first month (0.89 ± 0.37)with no significant variation among the average recorded values during the five months of chemotherapy treatments.

Uric acid:

the highest average value of Uric acid recoded in 5th month of chemotherapy (6.98 ± 0.86)while lowest recorded in the first month (4.41 ± 1.87)with no significant variation among the average recorded values during the five months of chemotherapy treatments.

Sodium (Na):

the highest average value of Sodium recoded in 5th month of chemotherapy (145.4 ± 3.40)while lowest recorded in the 1st month (138.2 ± 3.17)with no significant variation among the average recorded values during the five months of chemotherapy treatments.

Potassium (K)

the highest average value of Potassium recoded in 1st month of chemotherapy (3.92 ± 0.55)while lowest recorded in the 5th month (1.19 ± 0.92)with no significant variation among the average recorded values during the five months of chemotherapy treatments.

Calcium (Ca)

The highest average value of Calcium recoded in 1st month of chemotherapy (8.25 ± 0.65)while lowest recorded in the 5th month (5.49 ± 0.66)with no significant variation among the average recorded values during the five months of chemotherapy treatments.

Phosphorus (P)

The highest average value of Phosphorus recoded in 5th month of chemotherapy (3.89 ± 0.90)while lowest recorded in the 4th month (3.53 ± 0.91)with no significant variation among the average recorded values during the five months of chemotherapy treatments.

Magnesium (Mg)

The highest average value of Magnesium recoded in 5th month of chemotherapy (2.35 ± 0.78)while lowest recorded in the 2nd month (1.72 ± 0.39)with no significant variation among the average recorded values during the five months of chemotherapy treatments.

Table (2) Evaluation of kidney function parameter and electrolytes in male patient with deferent type of cancer

K. F reference range	1st month	2nd month	3rd month	4th month	5th month
Urea 15-45 mg/dl	29.06 ±10.50 NS	32.9±11.89 NS	32.13 ±1.23 NS	36.13± 12.66 NS	34.4± 8.51 NS
Creatinine 0.6 – 1.2 mg/dl	0.89 ± 0.37 NS	0.96 ± 0.313 NS	1.073 ± 0.44 NS	1.12 ± 0.37 NS	1.27 ± 0.35 NS
Uric acid 3.5-7.2 mg/dl M,2.6-6 mg/dl, F	4.413 ± 1.87 NS	5.33 ± 1.43 NS	5.88 ± 1.03 NS	5.86 ± 1.50 NS	6.98 ± 0.86 NS
Na 136-146 mEq/L	138.2 ± 3.17 NS	138.47 ± 4.19 NS	140.8 ± 2.70 NS	143.6 ± 2.53 NS	145.4 ± 3.4 NS
K 3.5-5.1 mEq/L	3.92 ± 0.55 NS	2.51 ± 0.80 NS	1.95 ± 0.89 NS	1.37 ± 0.82 NS	1.19 ± 0.92 NS
Ca 8.8-10.2 mg/dl	8.25 ± 0.65 NS	7.37 ± 0.95 NS	6.70 ± 0.85 NS	6.17 ± 0.99 NS	5.49 ± 0.66 NS
P 2.8-4 mg/dl	3.59 ± 0.81 NS	3.82 ± 1.32 NS	3.77 ± 0.89 NS	3.53 ± 0.91 NS	3.89 ± 0.90 NS
Mg 1.7-2.1 mg/dl	1.83 ± 0.62 NS	1.75 ± 0.39 NS	1.89 ± 0.48 NS	2.01 ± 0.64 NS	2.35 ± 0.78 NS

NS means not significant

Data presented in figs (1 -8) shows that, no significant variations were recorded between male and female kidney function parameters during the course of the study for all studied parameters.

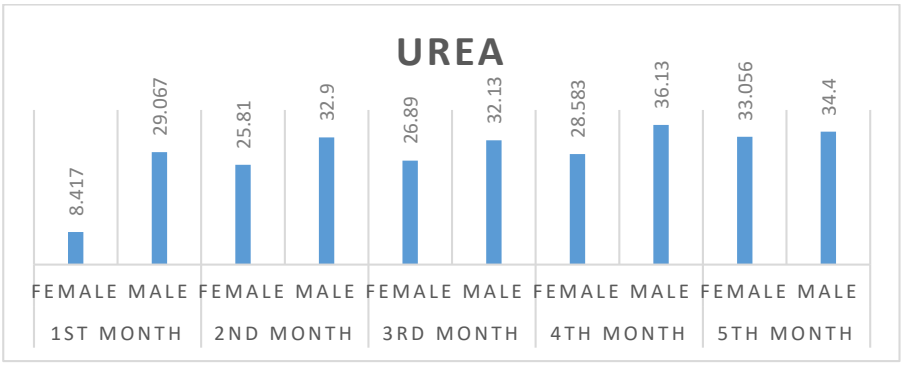

Figure (1) comparison of urea levels in male and female patient with deferent type of cancer during 5 months of chemotherapy.

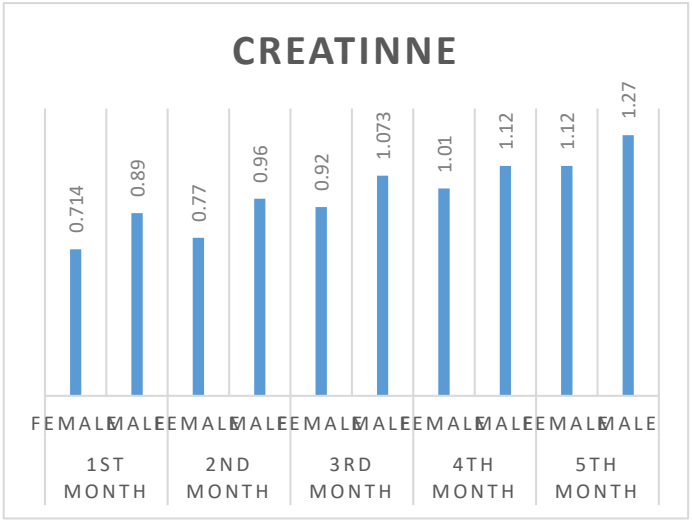

Figure (2) comparison of creatinine levels in male and female patient with deferent type of cancer during 5 months of chemotherapy.

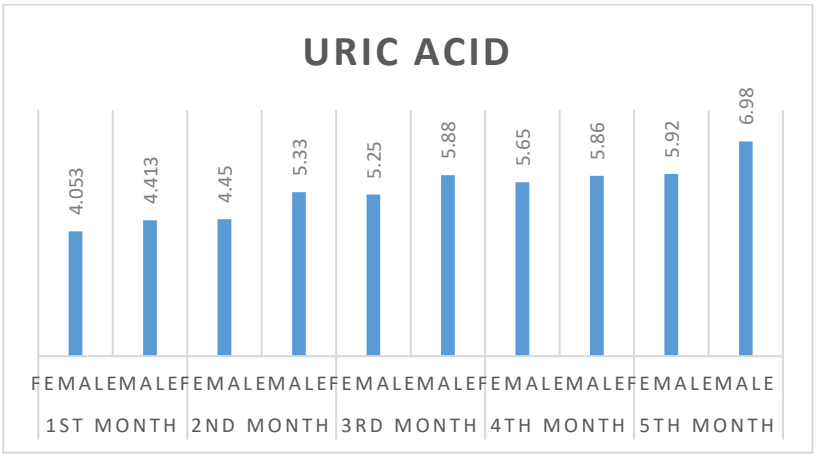

Figure (3) comparison of uric acid levels in male and female patient with deferent type of cancer during 5 months of chemotherapy.

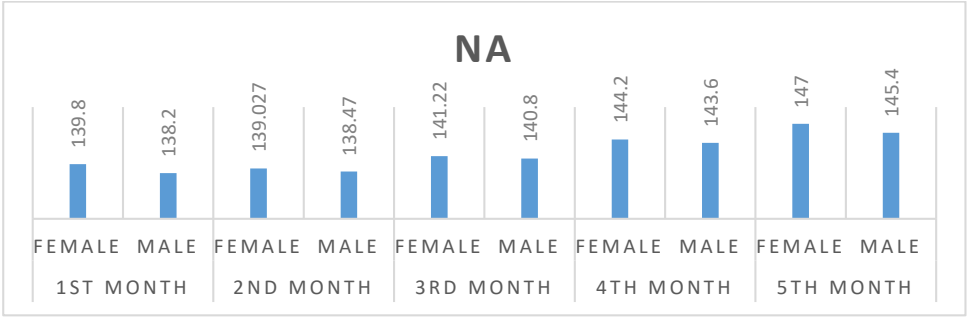

Figure (4) comparison of sodium levels in male and female patient with deferent type of cancer during 5 months of chemotherapy.

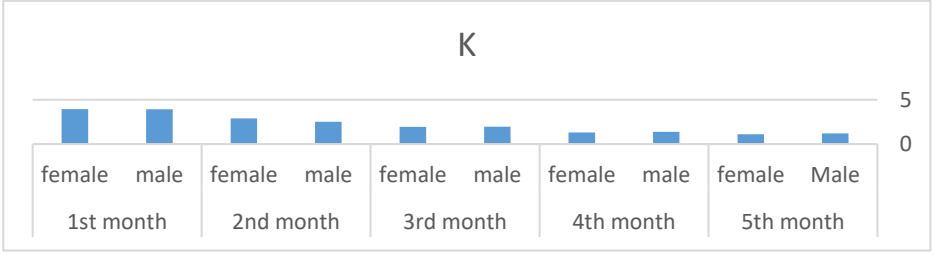

Figure (5) comparison of potassium levels in male and female patient with deferent type of cancer during 5 months of chemotherapy.

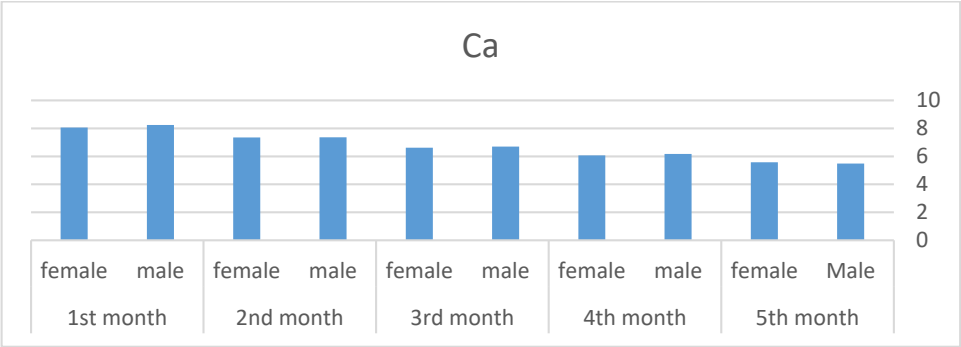

Figure (6) comparison of calcium levels in male and female patient with deferent type of cancer during 5 months of chemotherapy.

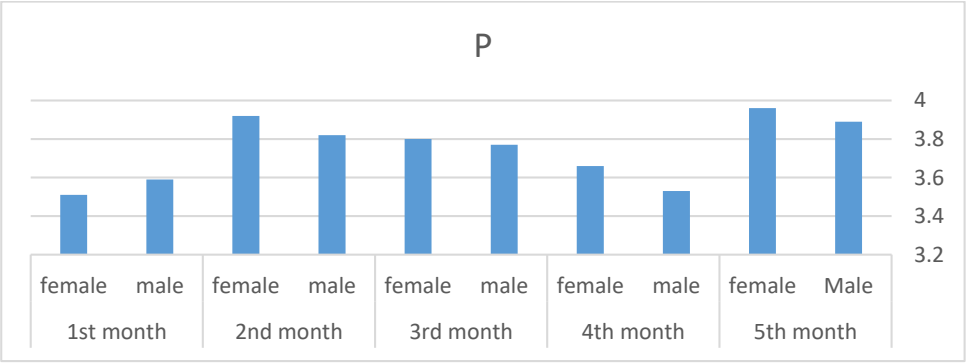

Figure (7) comparison of phosphorus levels in male and female patient with deferent type of cancer during 5 months of chemotherapy.

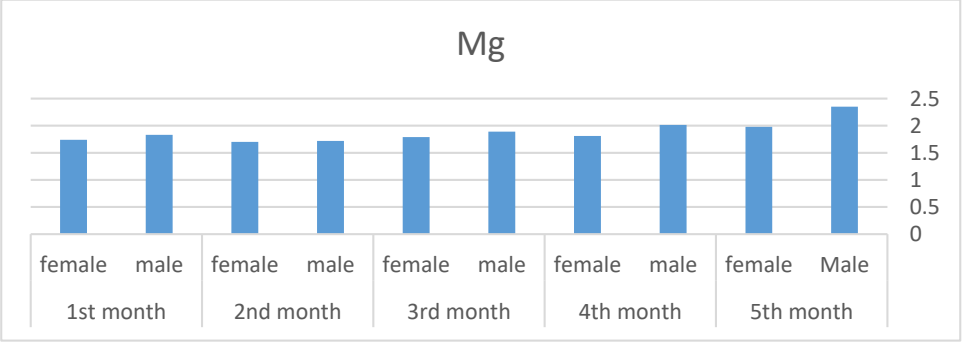

Figure (8) comparison of magnesium levels in male and female patient with deferent type of cancer during 5 months of chemotherapy.

4. Discussion:

According to the results presented in this study, no significant variations were recorded among the studied parameters of kidney function before and after chemotherapy treatments. On the other hand, no significant variation was recorded between male and female cases during the course of chemotherapy treatment. These results are on line with those of Kumari*et al*, 2018[16] who reported that, the mean electrolyte levels in serum before chemotherapy was sodium 139.66 ±2.34mEq/L, potassium 3.99 ±0.25mEq/L, magnesium 2.03 ±0.23mEq/L, chloride 102.69mEq/L. The levels of sodium after chemotherapy with its duration showed no significant correlation. There was no significant relation between potassium levels as well. Siddiqui *et al*, 2018[17] concluded that, there is difference in electrolyte levels before and after chemotherapy in cancer patients and no correlation was observed in various electrolytes with the duration of chemotherapy although the difference in electrolyte levels is not clinically significant and can be managed promptly in less time. It could be seen from the previous results that, the parameters of kidney function for male and female patients did not exhibit any variation in comparison with the reference ranges during the five months course of chemotherapy treatment.

5. Conclusion

The present study concluded that there is no significant difference in electrolyte levels during chemotherapy in cancer patients. And the difference in electrolyte levels is not clinically significant and can be managed promptly in less time. Furthermore, no s was observed in electrolytes including sodium, potassium, magnesium, urea and creatinine.

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"Experimental Investigation on the Influence of Elliptical Fin Long-To-Short Axis Ratio on Heat Transfer Performance by Forced Convection"

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Abstract

Most of the engineering industries require high performance heat transfer components with progressively less weights, volume, accommodating shapes and costs. Which an increase in the rate of thermal transfer is required. Extended surface (fins) are one of the heat exchanging devices that are employed extensively to increase heat transfer rates. The rate of heat transfer depends on the surface area of the fin. Radial annular fins are one of the most popular choices for exchanging the heat transfer rate from the primary surface of cylindrical shape. In this research paper,materials of fins and the fins base are 6063 aluminum alloy was used and the result found an optimum major and minor axis ratio for elliptical fin at (a/b = 2.66) has a high performance of heat transfer by force convection.

Key Words: heat transfer rate, force convection, heat exchanger performance, Elliptical Fin

Introduction

The plate fin heat exchanger can be used for gas-gas, gas-liquid, and multi-phase applications over a broad range of temperatures and pressures. They have many different applications. They are mostly used in the manufacturing of petrochemicals, massive refrigeration systems, natural gas processing and liquefaction, and cryogenic separation and liquefaction of air.

The necessity to conserve energy and cut expenses dictates the following conditions for the design of any heat sink or heat exchanger: the overall heat transfer rate should be high while the system's volume and weight should be minimal. A system's surface area can be enhanced by including fins, which

will increase heat transmission. When the convective heat transfer coefficient is low, as it frequently is for gases like air, especially under natural convection circumstances, fins are used Convective thermal resistance is reduced as a result of the addition of fins, which raise the h_c A product. However, since there must be a temperature differential along the fin to transport the heat, the additional area is less effective than the original surface area.

The performance of many frequently used fin geometries, including circular, square, rectangular, and elliptical, was numerically compared by Behnia et al.[3] in their study. They fixed the flow passage area, wetted surface area, and fin cross-sectional area per unit base area for all geometries. They discovered that elliptical fins perform better than plate fins and circular pin fins perform better than square pin fins. Additionally, they discovered that round pin fins function best at higher values whereas elliptical fins perform well at lower values of pressure drop and pumping work. In the Reynolds number range of 1000 to 10,000, Li et al. [4] shown experimentally that the heat transfer rate with elliptical pin fins is higher than that with circular pin fins while the resistance of the former is significantly lower than that of the latter. Chapman and co.In low air flow situations, parallel plate fins and cross-cut pin fins were experimentally tested, and their performance was compared to that of elliptical pin fin heat sinks. In their tests, they employed heat sinks of equivalent volume. They discovered that elliptical pin fins had the maximum heat transfer coefficient, whereas parallel plate fins had the lowest overall thermal resistance among the three designs Ota et al.[5,6] investigated heat transmission and flow using an elliptical cylinder with axes ranging from 1:2 to 1:3. According to their experimental findings, an elliptical cylinder has

a higher heat transfer coefficient than a circular one with an equivalent circumference, while the former has a far lower pressure drag coefficient than the latter. A theoretical framework was developed by Poulikakos and Bejan [7] to establish the ideal fin dimensions for forced convection with the least amount of entropy formation. To choose the ideal proportions for pin fins, rectangular plate fins, plate fins with trapezoidal cross sections, and triangular plate fins with rectangular cross sections, they first created a formula for the entropy generation rate for a generic fin. Their research appears to be inconclusive on which types of geometry are superior to others. The thermal performance of heat sinks with various fin designs, such as straight fins and pin fins with circular, quadratic, and elliptical cross sections, was compared in experiments by Jonsson and Bjorn[8]. By comparing the thermal resistance of the heat sinks at equal average velocity and equal pressure drop, they assessed the thermal performance. At high speeds, they advised using elliptical pin-fins, and at medium speeds, circular pin-fins. Regarding the thermal performance of model pin-fin fan-sink assemblies, Wirtz et al.[9] reported experimental results. They used cylindrical, square, and diamond shape cross section pin-fins and found that cylindrical pin-fins give the best overall fan-sink performance. Furthermore, the overall heat sink thermal resistance decreases with an increase in either applied pressure rise or fan power and fin.Laor and Kalman[10] investigated the performance of longitudinal fins, spines, and annular fins having rectangular, triangular, and parabolic shapes with uniform and non-uniform heat generation and temperature distributionsBar-Cohen and his co-workers[11–14] performed at least material optimization of plate-fin geometry by extending the use of least-material single fin analysis to multiple fin arrays. Theyexplored the

potential for the least energy optimization of natural and forced convection cooled rectangular plate heat sinks. The results are evaluated in terms of a heat sink coefficient of performance, relating the cooling capability to the energy invested in the fabrication and operation of the heat sink, and compared to the entropy generation minimization.

Considerable amount of study has been done in pin fin research. The effects of various parameters on heat transfer and pressure losses have been investigated by N. Nagarani[15]describes a numerical experimental study of the heat transfer analysis of elliptical and circular fins that are constructed from the same types of metal, have an identical surface area, and are subjected to free convection heating. N. Nagarani [16] examined the annular circular fin's heat transfer rate and efficiency and compared it to the elliptic fin.

In this research paper, force convections heat transfer of elliptic annular fin with different major and minor axis ratios (a/b) will studied experimentally. Eight sets specimens

Problem definition:

Now a day's compact heat exchanger with less weight, cost and space are required in food processing industries, chemical industries and refrigeration units. From space restriction on one side and enough space in perpendicular directions elliptical fins will be better choice.

Experiment Design:

In this research paper, Force convection heat transfer of ellipitic annular fins with different length/depth ratios was experimentally investigated, Eight samples sets with elliptical annular fin and cross section with different axis

aspect ratios (a/b), the samples ratios was used as following: 2,2.22, 2.42, 2.66, 2.86,3.13,3.39 and 3.66 at constant surface area and thickness were tested experimentallyas shown in Figure 1.For examine the force convection, it is decided to use the air flow velocity from 0.15 to 0.28 m/s. The experiments were conducted at constant temperature in air circumference excluding air currents.

Figure 1. Elliptical fin shape at different axis used in the experimental work for natural convection

Material Properties:

Thermo-physical Properties of Aluminum

The materials of fins and the fins base are 6063- alloy of aluminum because of its good thermo-physical characteristics and small density and relatively low price.

Following constant thermo-physical properties of aluminum are used in the numerical calculations,

$$\rho = 2719 \text{ kg/}m^3, \text{ Cp} = 871 \text{ j/kg k. , K} = 233 \text{ w/m. k.}$$

Table.1 specification of fins and heat exchanger

Specifications for fins and heat exchanger	
Fin material	AA6063
Fin thickness (both fins)	1 mm
Heater type	Tubular
Heater temperature controller	PIDfor (J) type
Circular pipe material	Stainless steel
Pipe thickness	1 mm
Pipe diameter	18 mm
Pipe length	800 mm
Heat temperature variation between switching	2 ℃ +/-
Heat voltage	220 Volts AC

Table 2. Elliptical Fin axis ratio

Set no.	Major axis. (a, cm)	Minor axis (b, cm)	(a/b) ratio
1	8	4	2 (a_1/b_1)
2	8.5	3.82	2.22 (a_2/b_2)
3	8.8	3.65	2.42 (a_3/b_3)
4	9.3	3.50	2.66 (a_4/b_4)
5	9.7	3.39	2.86 (a_5/b_5)
6	10	3.21	3.13 (a_6/b_6)
7	10.6	3.12	3.39 (a_7/b_7)
8	10.8	2.98	3.66 (a_8/b_8)

Results and Discussion:

The heat transfer coefficient is (n) of the important factor in this study; the air velocity and the aspect ratio of the fins affect the heat transfer from the fin to the surrounding atmosphere. The results in Table 2 show that set No. 4 (a/b

= 2.66) has a higher value of heat transfer coefficient to the temperatures used about162 w/m^2 K by free convection [15], hence the axis aspect ratio of elliptical fin was fixed for practical examination the effect of fin thermal performance of forced convection as summarised in Table 3. In addtion, the table shows the heat transfer coefficient result with change of fin aspect ratio at constant air fan velocity (V = 0.38 m/s) is summarised.

Table 3. The heat transfer coefficient at a different axis ratio by forced convection

Set no.	a/b ratio	h (w/m^2 K)	Air velocity (m/s)	h (w/m^2 K)
1	2	172	0.00	163
2	2.22	182	0.20	176
3	2.42	198	0.29	183
4	2.66	204	0.38	195
5	2.86	194	0.56	186
6	3.13	178	0.66	178
7	3.39	171		
8	3.66	168		

Force Convection heat transfer results

Forced convection heat transfer from a given surface is a function of the local flow velocity. In order to predict the local velocity, a flow network analysis (math lab)can be used to calculate the flow of fluid (air or liquid) inside the machine.. Forced airflow is always required to effectively manage the temperature of a solid state relay mounted to a finned heat sink. The temperature can often be maintained through normal convection airflow due to low ambient temperatures, minimal power dissipation of the relay, low duty cycles, or other mitigating circumstances.

It is decide to use the same eight sets of elliptical fin major (a) and minor (b) axis ratio (a/b) used in previous work, but in forced convection by a mechanical fan with three variable speed from 1000 to 1500 rpm to examine the elliptical fin heat transfer performance and these dimensionless number (Nusseltno.,Reynoldsno.&Taylor no.). These all parameters will examine at the range of temperatures from 100 to 260 ^{o}C.

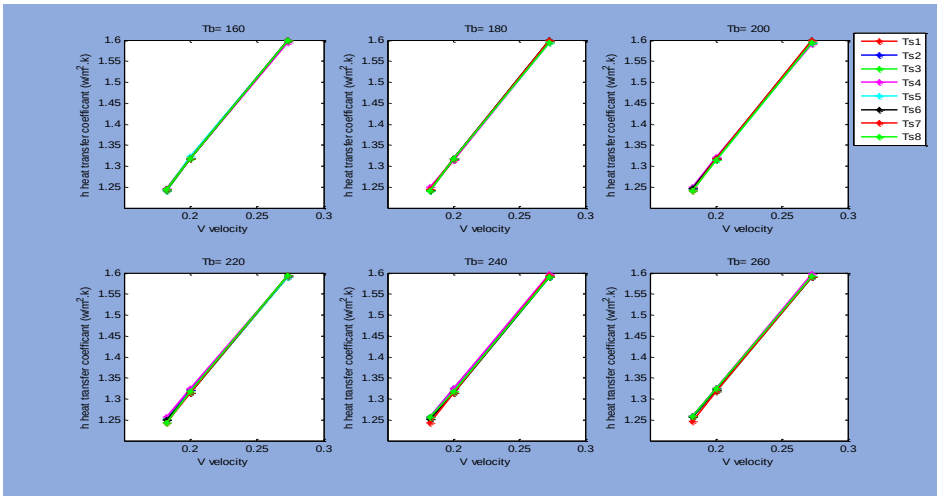


Figure2. The relation of heat transfer coefficient and the airflow velocity for different base temperature as follow : a) at T_b =160 ^{o}C, b) at T_b =180 ^{o}C, c) at T_b =200 ^{o}C, d) at T_b =220 ^{o}C, e) at T_b =240 ^{o}C and f) at T_b =260 ^{o}C.

The heat transfer coefficient is found increase with increasing of airflow velocity for all range of temperatures used from 160 to 260 ^{o}C and different major and manor axis (a/b)of elliptical fin. The range of heat transfer very low vary from 1.25 to 1.6 w/m^{2}k due to a small temperatures different and an excellent cooling happen.

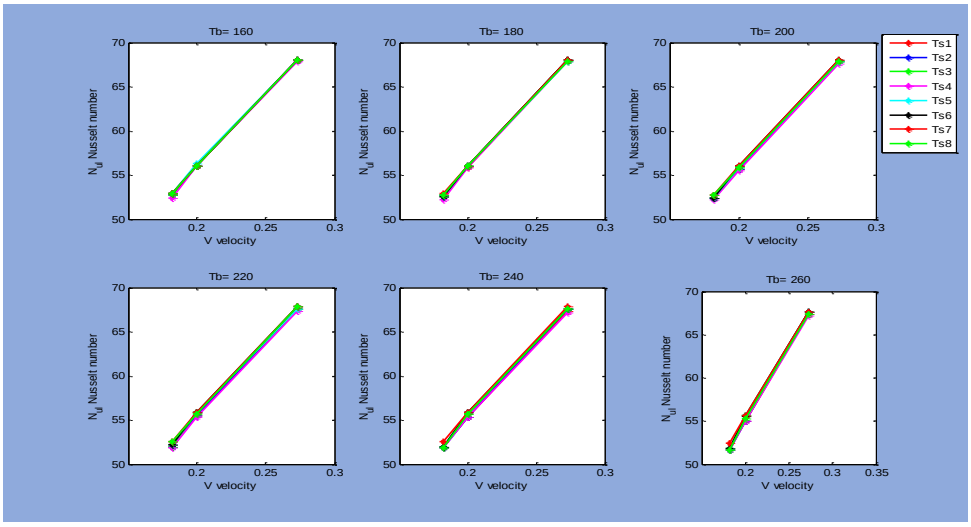


Figure 3. The relation of Nusselt number and the airflow velocity for different base temperature as follow : a) at Tb =160 oC, b) at Tb =180 ºC, c) at Tb =200 ºC, d) at Tb =220º C, e) at Tb =240 ºC and f) at Tb =260 ºC.

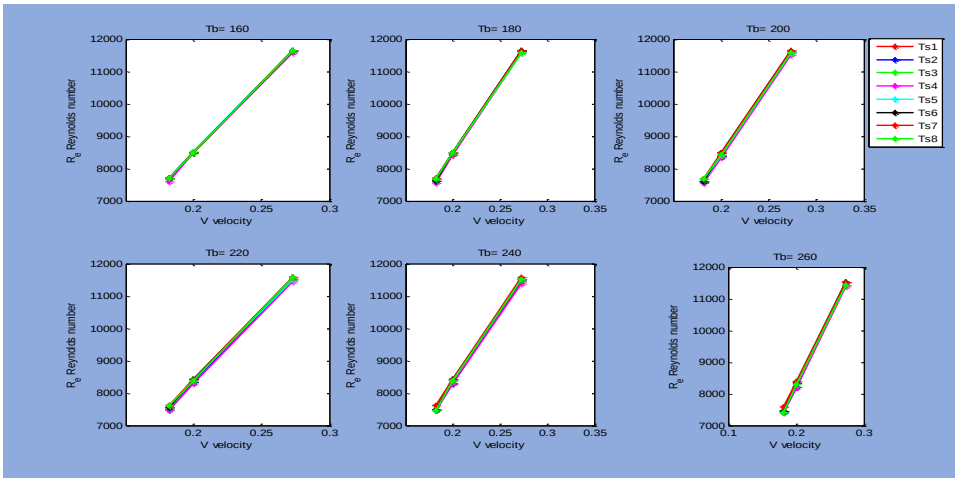


Figure 4.The relation of Reynolds number and the airflow velocity for different base temperature and elliptical fin axis ratios as follow : a) at T_b =160 ºC, b) at T_b =180 ºC, c) at T_b =200 ºC, d) at T_b =220 ºC, e) at T_b =240 ºC and f) at T_b =260 ºC.

Nusselt number increase linearly with increase the airflow velocity for all aspect major and minor axis ratio of elliptical fin in the present work and the range of temperatures used from 160 to 260 ^{o}C**.**Reynolds number has a linear relation for the range of airflow velocity from 0.17 to 0.27 m/sec. for all base temperatures and different sets of elliptical fin used in this work .

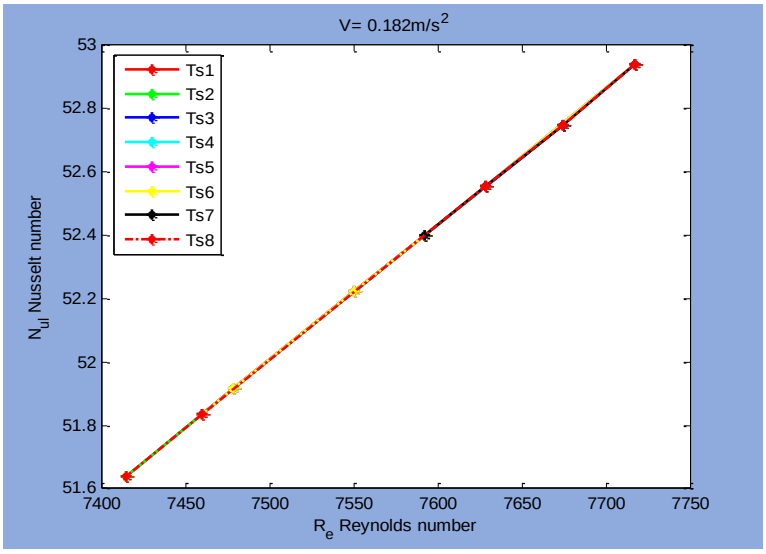


Figure 5. The relation of Reynolds number with Nusslt number at constant airflow velocity .

There is a linear relation between the Reynolds number with Nusslt number for force convection by airflow at different major and minor axis ratios (a/b) of elliptical fin.

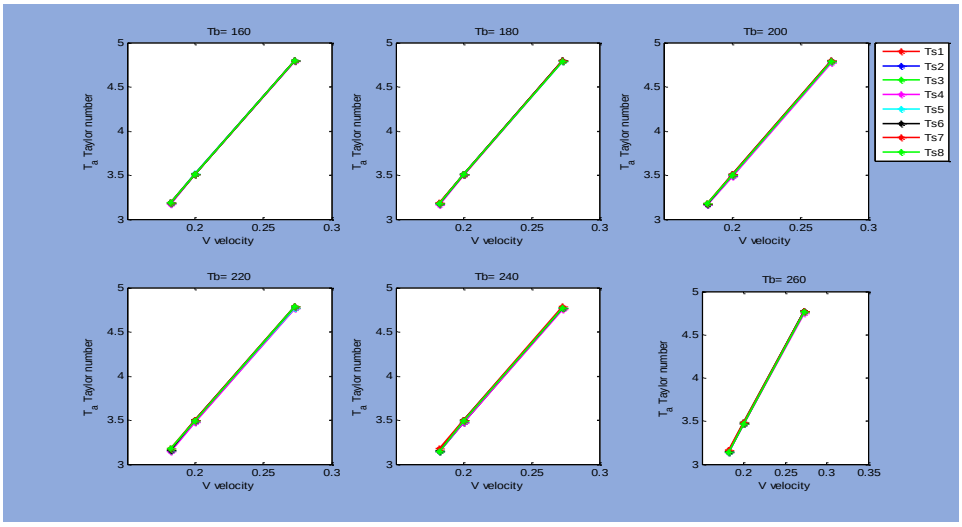


Figure 6.The relation of Taylour number and the airflow velocity for different base temperature and elliptical fin axis ratios as follow : a) at T_b =160 ºC, b) at T_b =180 ºC, c) at T_b =200ºC, d) at T_b =220 ºC, e) at T_b =240 ºC and f) at T_b =260 ºC.

The traditional method to account for heat transfer across the electrical machine air gaps is to use the dimensionless convection correlations developed from testing on smooth concentric rotating cylinders by Taylor [36]. In order to judge if the flow in the air gap is laminar, vortex, or turbulent, the Taylor number (Ta) has to be calculated using

$$T_a = R_e \left({}^{l_g}/_{R_r} \right)^{0.5}$$

……(1)

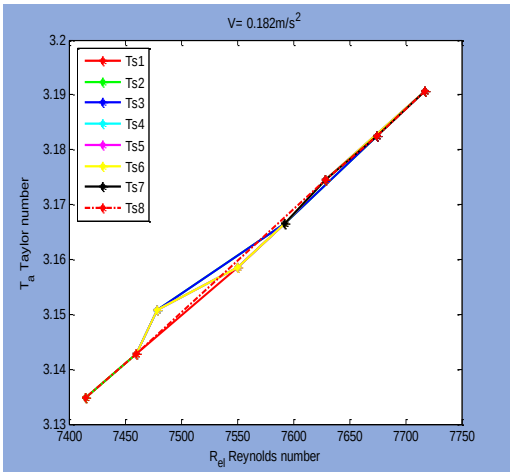
Where :$l_g$is the air-gap radial thickness, $R_r$is the rotor outer radius, and R_e= $l_g . v/\mu$.

The flow is laminar if T_a<41. In this case, Nu = 2, and heat transfer is by conduction only .But for Nu. No. more than 2, heat transfer is by conduction

and convection . If 41 $<T_a<100$, the flow takes on a vortex form with enhanced heat transfer; in this case, the following equation has to be used: N_u = 0.202 $.T_a^{0.63}.P_r^{0}$If Ta >100, the flow becomes fully turbulent, and a further increase in heat transfer results. In this condition, the following equation is used to calculate Nu:

N_u = 0.386 $.T_a^{0.5}.P_r^{0.27}$……(2)

It can be deduce from this figure as the airflow increase the Taylor number increase for all sets and base temperatures used and Ta. No. less than 41 with Nu. No. more than 2, So we have a heat transfer by conduction and convection happen at the surface of elliptical fin to the different major and minor axis ratio.



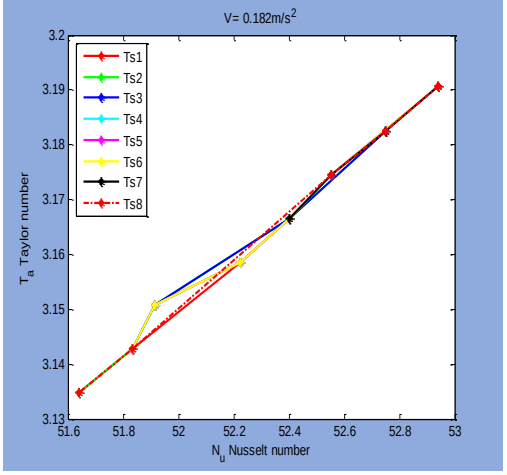


Figure 7. Reynolds number with Taylor number at different axis ratios of elliptical fin.

Figure 8.Nusselt number against the Taylor number at constant airflow velocity at different axisratios of elliptical fin.

It can be deduce from the above figures (7 and 8) , both Nusselt and Reynolds numbers increase with increasing the Taylor numbers for all major and minor axis ratios of elliptical fin**.**

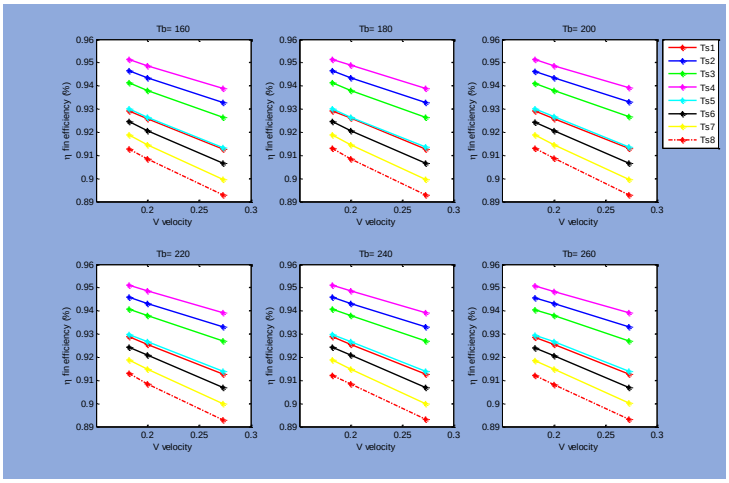


Figure 9. The relation of elliptical fin efficiency and the airflow velocity to the all axis ratio used for different base temperature as follow : a) at T_b =160 ºC, b) at T_b =180 ºC, c) at T_b =200 ºC, d) at T_b =220 ºC, e) at T_b =240 ºC and f) at T_b =260 ºC.

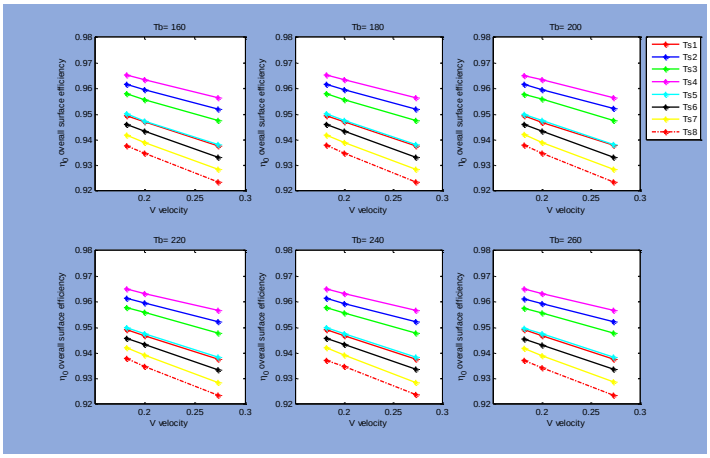


Figure 10. The relation of overall fin efficiency and the airflow velocity to the all axis ratios used for different base temperature as follow : a) at T_b =160 ºC, b) at T_b =180 ºC, c) at T_b =200 ºC, d) at T_b =220 ºC, e) at T_b =240 ºC and f) at T_b =260 ºC.

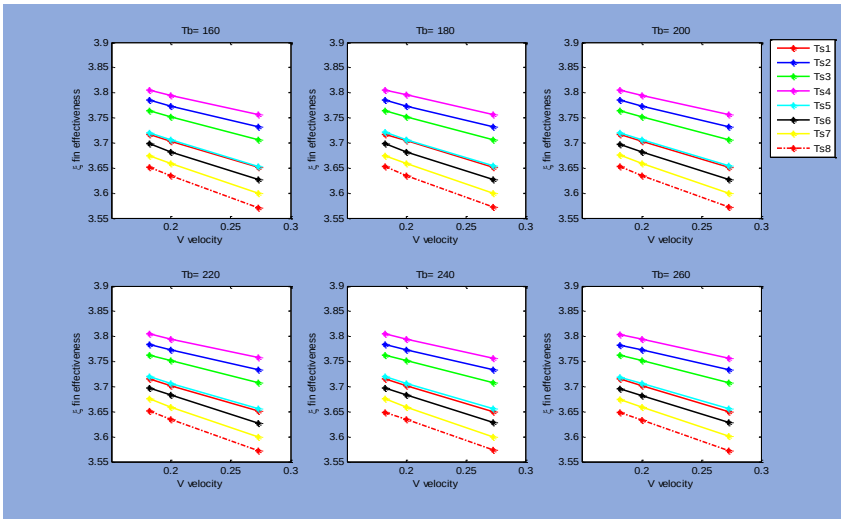


Figure 11. The relation of fin effectiveness and the airflow velocity for different base temperature and elliptical fin axis ratios as follow : a) at Tb =160 oC, b) at Tb =180 oC, c) at Tb =200 oC, d) at Tb =220 oC, e) at Tb =240 oC and f) at Tb =260 oC.

The elliptical fin heat transfer performance is measured by the fin efficiency and overall efficiency and the fin effectiveness as shown in the above figures (8,9and10). It is found the thermal fin performance decrease with increasing the airflow velocity for laminar flow and force convection. The relation of fin performance parameters are nearly constant for the range of base temperatures used from 160 to 260 ^{o}C**.**

The elliptical fin effectiveness more than 1 for all sets of elliptical fin major and minor (a/b) axis ratio and base temperatures range , that's indicate that fins are enhancingheat transfer from the surface, as they should.The set number 4 has a high value of fin efficiency and effectiveness than other sets used by force convection in the our present work.

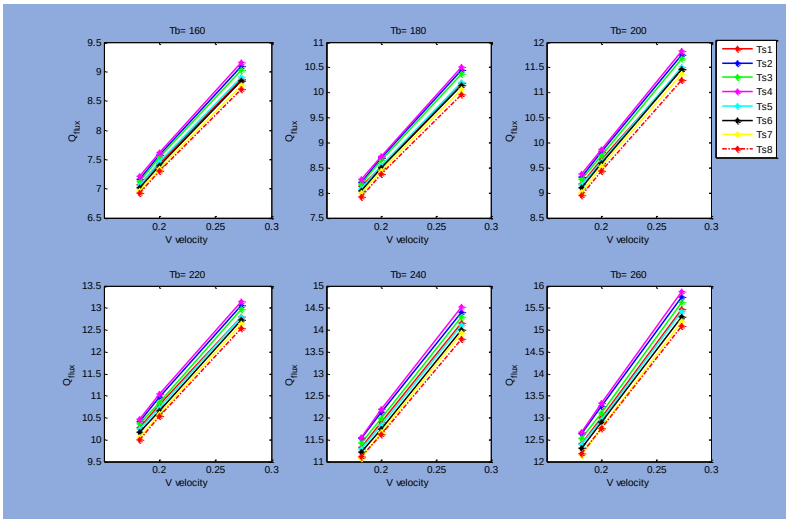


Figure 12. The relation of fin heat flux and the airflow velocity for different base temperature as follow : a) at T_b =160 ºC, b) at T_b =180 ºC, c) at T_b =200 ºC, d) at T_b =220 ºC, e) at T_b =240 ºC and f) at T_b =260 ºC.

The maximum heat transfer done at the surface of elliptical fin for all aspect axis ratio increase with increase the air flow velocity at all base temperatures used.

Conclusion

The following conclusion are drawn from the present work:

1- It is found an optimum value in the heat transfer performance of elliptical fin at set no. 4 (a/b = 2.66) by forced convection .

2- The forced convection by used a fan percentage increase the effectiveness of elliptical fin from 50.7 to 79.1 %.

3- The performance of heat transfer to the sets of elliptical fin at force convection range from 35 to 80%.

4- The use of forced airflow may provide a cost-effective means to reduce the size of a heat sink assembly. In other cases, forced airflow may be the

only means available to effectively manage the heat of a solid state relay due to high power dissipation or conditions of the application's environment.

Considering the above points, it is concluded from the experimental results that the performance of heat transfer rate to elliptical fin is better in respect of heat transfer coefficient, shaped tube efficiency, thermal resistance ,overall efficiency and effectiveness when compared to those of different major and manor axis ratio

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