

AN EFFECTIVE WAY OF MONITORING STUDENTS DURING COMPUTER-BASED PRACTICAL USING REMOTE ACCESS SOFTWARE

BY

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Abstract

Remote access software or remote-control software, let you remotely control one Computer system from another. By remote control it means having power remotely control over the mouse and Keyboard and utilize the computer system associated with like your own. This is particularly important in helping a companion who live 500 miles away to have the capacity to remotely control the computer system to settle issues. This paper therefore, tried to show how TeamViewer is used as a powerful strategy to observe students during computer-based practical.

Keywords: *Computer-based, Remote Access, TeamViewer.*

1. INTRODUCTION

Physical monitoring of students during computer-based practical is a herculean task. This is because students tend to use the computer for certain activities that they are not officially given. They lunch games or any other application that suit them abandoning their primary activity which they suppose to do. The supervisor that monitors students during computer-based practical may go round in the laboratory making sure they do the assigned activity, but still, some students will monitor his/her movement so that they will know when to do their unassigned activities when he/she is not by their sides. He /She(the supervisor) has to go round to assist the students, jumping from one desk to another making him/her become weak.

Janssen, (2003), opined that remote access software is a type of software that enables a local user to connect to and access a remote computer, server or network. It enables connectivity of two or more computers/network nodes that are on separate networks and/or in different geographical locations. Remote access software is typically installed on the local computer or can be deployed over the

network/Internet on a remote access server. Remote access software works by creating a connection between a local and remote host over a network or Internet connection. User dials in or requests access on the remote computer or server. Once authenticated, the local user can access the entire desktop/server or configured services such as data or file download. Using the remote access software will make the monitoring of the students very easy in the sense that, the supervisor will sit on the server computer assisting the students as well as monitoring their activities without physically going around. This paper highlights the effective way of monitoring students during computer-based practical using TeamViewer as one of the popular remote access software.

This paper is organized as follows: section 2 explained some types of remote access software, section 3 explained TeamViewer modules; installation and configuration of TeamViewer, section 4 explained the method of monitoring students during computer-based practical with TeamViewer and section 5 concludes the paper.

2. Literature Review

2.1 Types of Remote Access Software

There are many remote access software available to use some are freeware while others are paid versions. (Fisher, 1998) report some of the popular types of remote access software which include TeamViewer, Windows Remote Desktop, Chrome Remote Desktop, Remote Utilities, AeroAdmin, UltraVNC, RemotePC, AnyDesk, LiteManager, ShowMyPC, Comodo Unite, Secscreen, join.me, DesktopNow and BeamYourScreen. This section compared three remote access software out of the fifteen mentioned above and these are TeamViewer, Windows Remote Desktop and Chrome Remote Desktop.

2.1.1 Teamviewer

TeamViewer is effectively the best freeware remote access software I have ever used. There are huge amounts of highlights, which is constantly extraordinary, but at the same time, it's to a great degree simple to install. No changes to router or firewall configurations are required. With support for video, voice calls, and text chat, TeamViewer also allows file transfers, supports wake-on-LAN (WOL), can remotely

watch the screen of an iPhone or iPad user, and can even remotely reboot a PC into Safe Mode and after thatreconnect automatically.

2.1.2 Host Side

The computer you want to connect to with TeamViewer can be a Windows, Mac, or Linux computer. A full, installable version of TeamViewer is one option here and is probably the safe bet if you're not sure what to do. A portable version, called TeamViewer Quick Support, is a great choice if the computer you want to remote control will only need to be accessed once or if installing software on it isn't possible. The third option, TeamViewer Host, is the best choice if you'll be regularly connecting to this computer.

2.1.2 Client Side

TeamViewer has a number of options for connecting to the computer you want to control. Installable and portable programs are available for Windows, Mac, and Linux, as well as mobile apps for iOS, BlackBerry, Android, and Windows Phone. Yes - that means you can use your phone or tablet to connect to your remotely controlled computers while on the go. TeamViewer also lets you also use a web browser to remotely access a computer. A number of other features are also included, like the ability to share a single application window with someone else (instead of the whole desktop) and the option to print remote files to a local printer.

2.2 Windows Remote Desktop

Windows Remote Desktop is the remote access software built into the Windows operating system. No additional download is necessary to use the program.

2.2.1 Host Side

To enable connections to a computer with Windows Remote Desktop, you must open the *System Properties* settings (accessible via Control Panel) and allow remote connections via a particular Windows user through the *Remote* tab. You *do* have to setup your router for port forwarding so another PC can connect to it from outside the network, but this is usually not that big of a hassle to complete

2.2.2 Client Side

The other computer that wishes to connect to the host machine must simply open the already installed Remote Desktop Connection software and enter the IP address of the host.

Most of the other software in this list have features that Windows Remote Desktop doesn't, but this method of remote access seems to be the most natural and easiest way to control the mouse and keyboard of a remote PC.

2.2.3 Remote Desktop Availability

Windows Remote Desktop can be used on Windows from XP up through Windows 10. However, while all versions of Windows can connect to other computers that have incoming connections enabled, not all Windows versions can act as a host (i.e. accept incoming remote access requests). If you're using a *Home Premium* version or below, your computer can only act as a client and therefore cannot be accessed remotely (but it can still access other computers remotely). Incoming remote access is only allowed on *Professional, Enterprise, and Ultimate* versions of Windows. In those editions, others can remote into the computer as described above. Something else to remember is that Remote Desktop will kick a user off if they're logged in when someone connects to that user's account remotely. This is vastly different from every other program in this list - all the others can remote into a user account while the user is still actively using the computer.

2.3 Chrome Remote Desktop

Chrome Remote Desktop is an extension for the Google Chrome web browser that lets you setup a computer for remote access from any other Chrome browser.

2.3.1 Host Side

The way this works is that you install the extension in Google Chrome and then give authorization for remote access to that PC via a personal PIN you create yourself. This requires you to log on to your Google account, like your Gmail or YouTube login information.

2.3.2 Client Side

To connect to the host browser, sign on to another Chrome browser with the same Google credentials and install the same extension. Because you're logged in, you can easily see the other PC name, from where you can simply choose it and begin the remote session. There is simple copy/paste file sharing but there aren't advanced settings in Chrome Remote Desktop like you see with similar programs. However, it's very easy to configure and lets you or anyone else control and view your computer from another Chrome browser. Since Chrome Remote Desktop runs entirely within the Google Chrome browser, it can work with any operating system that uses Chrome, including Windows, Mac, Linux, and of course Chromebooks.

2.4. TeamViewer Modules, Installation and Configuration

According to (Koenig, 2004) there are ten TeamViewer modules available for download these are: the TeamViewer Full version, the TeamViewer Quick Support Module, the TeamViewer Quick Join Module, the TeamViewer Host Module, the TeamViewer Portable, the TeamViewer Manager, the TeamViewer MIS Package, the TeamViewer Management Console, the TeamViewer Mobile Devices and Customizable Modules. This section will explain about installation and configuration of TeamViewer, the TeamViewer full version Module, Quick Support Module, Quick Join Module, Host Module TeamViewer Portable and TeamViewer Mobile Devices.

2.4.1 Team Viewer Full Version

You can use this module to connect to partners and to accept incoming connection requests.

The main TeamViewer window is divided into the Remote Control and Meeting tabs.

2.4.2 The Remote-Control Tab

The Remote Control tab is divided into the following areas:

2.4.3 Allow Remote Control

In this area, you will find your TeamViewer ID and your temporary password. If you share this information with your partner, he or she will be able to connect to your computer. By clicking the icon in the Password field, a context menu will appear for changing the random password or for copying it to the clipboard (Windows copy & paste function). In addition, you can define a personal password here.

2.4.4 Control Remote Computer

To control a computer remotely, enter its ID in the Partner ID combo box. In addition, various connection modes are available:

- i. Remote control: Control your partner's computer or work together on a single computer.
- ii. File transfer: Transfer files from or to your partner's computer.
- iii. VPN: Create a virtual private network with your partner.

2.4.5 The Meeting Tab

The Meetingtab is divided into the following two areas:

2.4.5.1 Host Meeting

To host an Online Meeting with TeamViewer, select from the following options:

- ✓ Presentation: Click the icon to host an instant meeting.
- ✓ Video call: Click the icon to host a video conference.
- ✓ Phone: Click the icon to host aconference call.

With the links Schedule a meeting and My meetings, you can create meetings for later use and manage planned meetings.

2.4.5.2 Join Meeting

In the text fields Meeting ID and Your name, you can enter a Meeting ID and your name. The

Meeting ID is a unique number that is being created individually for every meeting and serves for joining meetings. During a meeting, your name is visible to all participants. To join a meeting, enter the aforementioned data in the text fields and click the *Join meeting* button. If the initiator of the meeting specified a password, it must be entered in the dialogue that will open. Otherwise, you are connected directly to the meeting.

2.5 Team Viewer Quick support Module

TeamViewer Quick Support is an application in the form of a single executable file. You can run this file without installing any software or without Windows or Mac OS administrative rights. This module lets you accept incoming remote control connections but does not allow you to set up outgoing connections yourself. Typically, you would provide this module to your customers. You can create your own TeamViewer Quick Support module with your own welcome text and company logo as well as other useful functions on the TeamViewer official website.

2.6 Team Viewer Quick Join Module

TeamViewer Quick Join is an application in the form of a single executable file that was developed specifically for participation in online presentations and meetings. You can create a custom TeamViewer Quick Join module with your own welcome text and logo as well as additional useful functions on our website.

2.7 TeamViewer Host Module

TeamViewer Host is installed as a Windows system service. Computers on which TeamViewer the host is installed can be administered with TeamViewer immediately upon system start (and before Windows login). Outgoing connections are not possible. You can use the tray icon to adjust the settings. To do so, right-click the tray icon and select *Options*. You would typically install this module on servers

or on unattended computers that you wish to administer remotely at any time. For computers or devices to which you require unattended access, and for which you provide instant support, you can also establish a connection to the device at any time via a service case.

2.8 Team Viewer Portable Module

TeamViewer Portable generally comprises all of the functions of the TeamViewer full version but is not installed and can, therefore, be started from any data carrier (such as a USB stick or a CD). Additional configuration information is available in the download package. TeamViewer Portable is included with the TeamViewer Premium and the TeamViewer Corporate license.

2.9 Team Viewer on Mobile Devices

TeamViewer is also available for mobile devices. You can start remote control sessions with iOS Android, Windows 10 Mobile or BlackBerry devices. In this process, you can conveniently control the remote computer. However, the number of functions is limited in comparison to the Windows version. Incoming connections from a computer to your mobile device are possible with the TeamViewer Quick-Support App. The according app "TeamViewer for Remote Control" can be downloaded from Google Play for Android, from the Apple AppStore for iOS, from the Windows Phone Store for Windows 10 Mobile and from BlackBerry World for BlackBerry.

2.10 Installation and Configuration of TeamViewer Full Version

This section will explain the installation and configuration process of the TeamViewer Full version. Before you can install the software, you must download the full version from this website: <https://www.teamviewer.com/download> and save the setup file on your computer.

2.11 Installing the TeamViewer Full Version

Run the setup file that you downloaded. An installation wizard will guide you through the installation process:

1. Decide on an installation type.
 - ✓ In order to always manually start TeamViewer, if necessary, select the *Basic Installation option* button.
 - ✓ If you would like to install TeamViewer as a system service, select the *Install to control this computer later from remote* option button. If you select this option, instructions will help you with the setup of TeamViewer as a system service.
 - ✓ If you want to run TeamViewer only once, select the *Run only option* button.
2. Select a field of use.
 - ✓ If you would like to use TeamViewer commercially (e.g. support, presentations, home office, desktop sharing with colleagues, etc.) select the *In the company/commercially* option button.
 - ✓ If you do not want to use TeamViewer commercially (e.g. connections with friends, relatives or your own computer), select the *private/non-commercial* option button.
 - ✓ If both apply, select the *Both option* button.
3. If you want to make additional adjustments during the installation, check the *Show advanced settings* check box. Otherwise, TeamViewer is automatically installed with the default settings.
4. Click the **Accept** button.
5. The installation of TeamViewer is complete.

Note: Some options are only available with Windows administrative rights.

3.7.3 How to Configure TeamViewer as a Windows System Service

If you did not set up automatic start with Windows (system service) during the installation process, you can always do it later by following these steps:

To configure TeamViewer as Windows system service, follow these steps:

1. Start TeamViewer.
2. In the main menu, click **Extras | Options**.

The TeamViewer settings dialogue box will open.

3. Select the category General.
4. Select the Start TeamViewer with Windows option.

A window will open prompting you for a password.

5. Enter a secure password in the Password field and confirm.
6. Click the OK button.
7. Click OK in the Permanent Access Activated dialogue box.
8. TeamViewer is now configured to start automatically with Windows.

2.12 Method Employed

This section will explain the method of monitoring students during computer-based practical with the TeamViewer as the remote access software for this article paper. The method will focus on host and client computers that are on LAN (Local Area Network). It will not cover the method on host and client computers that are connected to the Internet. Esther, (2004) reports that, you can establish remote control sessions directly within your local area network (LAN) by using IP addresses or computer hostnames. By default, this feature is deactivated because some software firewalls may not allow it. If you would like to receive a connection from another computer over your LAN, you need to enable this feature on your computer first:

1. Go into the TeamViewer Options--> General --> Incoming LAN Connections -> change to either **Accept** or **Accept exclusively**.

Note: If you choose **Accept exclusively**, TeamViewer will disconnect from the internet – that means it will no longer be possible to make or receive connections using the TeamViewer ID, and the Computer & Contacts list will no longer be available.

2. When you choose **Accept exclusively**, TeamViewer will display your computer's internal IP address on the main window of your TeamViewer application. The person who wishes to connect with you over the LAN can enter this IP address into their "Partner ID" field on their own TeamViewer client in order to connect to you. **Note:** If you choose **Accept**, TeamViewer will remain connected to the internet and regular connections using the TeamViewer ID will still be possible. In this case, to receive a LAN connection from another computer, you will need to find out your internal IP address to give to the other person. You can easily do this by opening the Command Prompt and typing:ipconfig. Your internal IP address will be displayed there as "IPv4 Address".
3. To start the TeamViewer LAN connection, please make sure that both computers are on the same network.
4. On the connecting computer, enter the internal IP address of the remote computer into the Partner ID field on the Remote-Control Tab. Click on **Connect to partner**, and enter the remote computer's TeamViewer password when prompted. Or you can configure the host computers (the computers which the students will use) for **unattended access** to make them permanent access remote computers. Now you are connected to the remote computer directly over the LAN, without using the internet. The supervisor can connect to any host computers on the LAN to remotely control it. Note: LAN connections are not included in the connection reports in the Management Console.

5. Conclusion

This paper concludes that Remote Access Software can be used for remote control, desktop sharing, online meetings, web conferencing and file transfer between computers. The paper recommends the use of TeamViewer as one of the popular

remote access software having vital features that other remote access software do not have.

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