



# Science of window films (tints): Choosing the right window film for our cars in Malaysia

This is the second part of the series on the science of car window films. [Read Part 1 of this series.](#)

The [first part](#) of this series discussed about how the car cabin warms up due to trapped heat from the Sun, and the various methods that we could use to cool our car cabin temperature. One of these methods is the installation of car window films or tints which have been showed by several studies that it is the overall most effective heat rejection, as well as the most practical, method.

## How window films works

Window films of the past were just vapor deposition of aluminum or silver metals. These metals were effective against blocking heat because they were very reflective, but because these films were very reflective, they also blocked out a large part of the visible light (VL) spectrum. These reflective films also had a “tin foil” look and were thus less aesthetically pleasing.



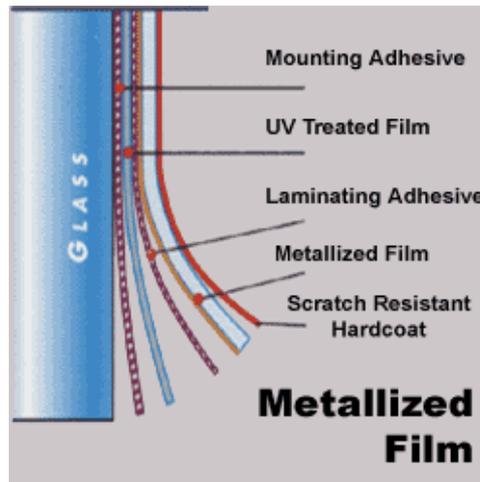
What are window films made of?  
(photo from [sunshinetinting.com](http://sunshinetinting.com)).

Window films have since changed rapidly. Modern window films today are lighter, longer lasting, and have high heat rejection rates but yet allowing in high visibility and reducing glare.

The key goal of window films is to reduce the transmission of solar radiation through the glass without impairing visibility. The more the window film can reflect the solar radiation, the more energy efficient the film is. The film can also absorb the solar radiation to reduce transmission, but this is undesired because the absorbed energy can radiate inward and contribute to warming.

Window films today have UV (ultraviolet) inhibitors in them because the film's polyester base can be destroyed by UV. That window films today have nearly 100% UV rejection rate is a double advantage because by blocking nearly all of the incoming UV, the window films will last longer (e.g., fade less) and the car occupants and car interior surfaces will be protected against UV harm.

Different manufacturers may use different ingredients and additives but the basic method of making a window film remains the same. A window film might look like a single layer, but it is actually made up of several layers.



A car window film actually consists of several layers. The layers are typically the protective liner (discarded prior to installation), adhesive layer, polyester layer (which itself can consist of several layers), and a scratch-resistance coat (photo from [cloud.tintcenter.com](http://cloud.tintcenter.com)).

The first layer is the protective liner. Although not important once the film is installed, the protective liner protects the adhesive layer of the film to ensure the window film will adhere to the glass firmly.

The next layer is the adhesive layer, which is protected by a liner, as mentioned earlier. This adhesive layer helps to affix the film to the glass. Different films will have different stickability: some will adhere strongly to the glass, whereas others less so. This adhesive layer is very important because a film with poor adhesive properties will cause the appearance of bubbles, peeling, or waves in the film shortly after installation.



Appearance of bubbles is one

common side-effect when a low quality window film is used.

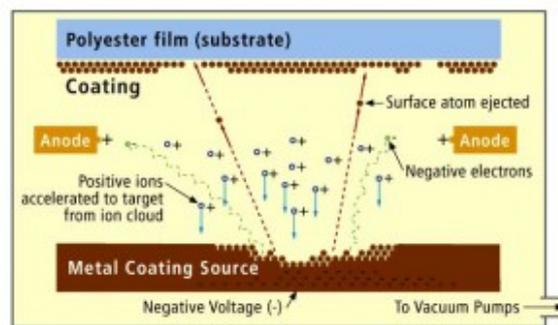


Likewise, a poor quality window film may eventually produce wave-like appearance on the glass which distorts viewing and make driving dangerous. This appearance is also known as the orange peeling effect (photo from [kereta.info](http://kereta.info)).

The third layer is made from polyester and which can comprise several layers. This polyester layer is the most important layer because it functions to block out heat but yet allow in sufficient visibility. This layer may also contain various add-ons such as metals and dyes to enhance the film heat rejection and appearance properties.

The last layer is the scratch-resistant acrylic coating that is placed over the polyester layer to protect the film from scratches and tearing. This layer helps to maintain a distortion-free viewing and allows the glass to look as natural as possible from the inside.

Once the ingredients of a window film reach the manufacturing floor, the processes the film undergoes can vary. Laminating occurs when layers of the film are bonded together using adhesive. Other common manufacturing processes are such as metallizing and dyeing, where metallizing is where a metal is adhered to the polyester base film to give the film reflective properties, and dyeing is where dyes are mixed with the film to give the film varying shades of darkness. Metallized films have higher heat rejection rates than dyed films because metallized films will reflect more and absorb less heat than that by dyed films. Recall that absorbed heat can radiate inward into the car cabin to warm the interior, whereas reflected heat radiates away and does not contribute to warming.



Metallizing is a process to deposit or adhere metals on the window film for higher reflectance (photo from [www.johnsonwindowfilms.com](http://www.johnsonwindowfilms.com)).

## How to choose the right window film

There are many types of window films and many manufacturers out there. Consequently, it can be confusing to choose the correct window film for our cars.

[One website](#) that offers good advice on how to select good quality car window films is by [Raytech](#). Essentially, in choosing the correct window film for our cars, the following should be our guide.



How can we choose the right window film for our cars? (photo from raytech.com.my).

## **1. Choose a reputable window film company**

A good reputation has to be earned, so a window film company with a good reputation means its window films have been used widely and for long periods, and the films have been tested and reviewed. Detailed information about the company and its film products must be easily available and accessible, notably through the net. The specifications about the company's various film products can also be easily checked and compared.

Choosing a window film company with a good international reputation is the first and most important step in choosing the right window film.

## **2. Choose the right window film installer or dealer**

Avoid unscrupulous dealers or car tint shops. Some unscrupulous activities include selling rebranded, fake, or so-called house brand window films, installing a different window film from what was earlier chosen, reporting false window film specifications, and presenting false demonstrations during window film selection.

### Do not be cheated by "House-Brand" products

Some dealers, who may also sell good brands, are unethical by selling fake brand products to their customers. Do not be cheated with "house-brand" or fake (not original) products. These products are brought in from unknown suppliers (i.e., not from original brand suppliers), labelled a new name, sold as if original just to make more profit, then given the shop's warranty card.

Normally, customers recognise brand names, but they may not know the various products under a given brand name. Customers can search via online the product's details and specifications. Customers will face warranty claim problems in the future if they are using "house-brand" products.



Avoid unscrupulous dealers or car tint shops which practise selling fake or house-brand film products (modified from raytech.com.my).

Consequently, we should only go to car-tinting shops that are officially authorized (with visible proof of authorization such as a certificate) by the window film manufacturers.

Moreover, all window films must be original with its brand name and trademark, name of manufacturer, and place of origin clearly marked on the film.

## 3. Choose the window film with the highest heat rejection rate

Once the window film company and the film dealer or installer have been selected, the next is to choose the film with the highest heat rejection rate. Two common heat rejection indexes used are IRR (Infrared Rejection) and TSER (Total Solar Energy Rejection). IRR measures only the amount of IR (infrared) component that is rejected by the window film. So, if a film has a 65% IR, it means the film rejects 65% (but lets in 35%) IR. However, IRR does not measure the total amount of heat that is rejected. Recall that all three components (UV, VL, and IR) of the solar radiation contribute to warming, not just the IR component.

## Finding a reputable window film company

# **is the first and most important step in choosing the right window film.**

A more holistic measure of total heat rejection is the TSER index. It measures how much UV, VL, and IR are rejected by a window film. Consequently, a film with 60% TSER means the film rejects 60% of total heat (as contributed by all three solar radiation components). The opposite of TSER is SHGC (Solar Heat Gain Coefficient). So, a film with a 60% TSER is equivalent to 40% SHGC which means 40% of total heat is not rejected or allowed in by the film.

Obviously then, we want a window film with a high TSER (or low SHGC) value for high heat rejection levels. Unfortunately, confusions persist among many consumers who are still guided to select window films based on IRR values. Moreover, many car-tinting shops only report IRR values but not the more valuable TSER values for their window films. In the website of one well-known window film company, for instance, even erroneously advocated the use of IRR values as the guide to choose between window films.

This situation is compounded when even the reported IRR values are inaccurate because the heat rejection measurements were only done on one narrow part rather than the whole IR spectrum range. The reported IRR values are thus overestimated because other parts of the IR spectrum are not accounted for in the heat rejection evaluations.

Consequently, we need to choose window films with high TSER (or equivalently, low SHGC) values. Ignore shops that do not report TSER or SHGC values for their tints. Also, ignore IRR values (regardless of how high their values may be) because they do not represent the total heat rejection levels.

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In the US, an estimated 20% of the population understand the benefits of window films and know how to choose the correct window film for their needs. In Malaysia, the number of such informed people is unknown, but the number could also be low if the estimate by one window film company is correct that 80% of Malaysians choose low quality window films for their cars.

Some common misconceptions among Malaysians are that good quality window

films are unnecessary, over-hyped, or over-priced without appreciating that good quality films adhere better to the glass, last longer, and reject high levels of heat; thus, saving costs in the long run in terms of lower fuel consumption as well as being more environmentally friendly. As stated in [Part 1](#) of this series, a cooler car cabin in a Honda Civic can lower the car's fuel consumption by 0.21 L per 100 km and lower carbon dioxide and nitrous oxides emissions by 4.9 g per km and 9.9 mg per km, respectively.



A good quality window tint is not expensive when we consider the long term benefits they give (photo from [www.groupon.com](http://www.groupon.com)).

In a hot country like Malaysia, tinting our car windows with a window film is essential. A good quality film will give good thermal comfort, protect us and our car interior from UV harm, and because a good quality tint lasts longer, the film will save us money in the long run in terms of lower fuel consumption, as well as enabling our cars to be more environmentally friendly.

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# Science of window films (tints): What methods can we use to cool our car cabins?

This is the first part of the series on the science of car window films. [Read Part 2 of this series.](#)

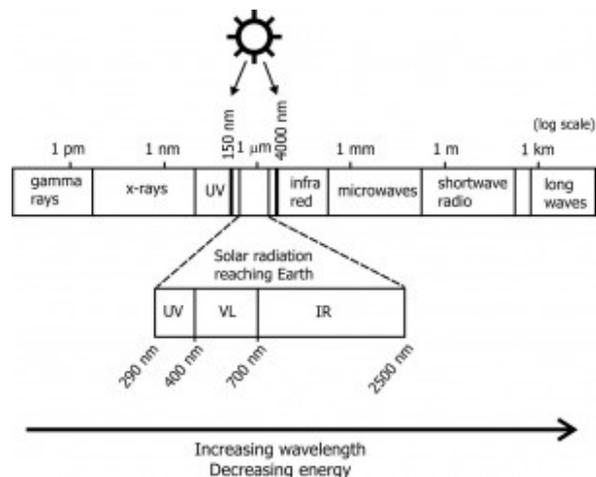
On a warm day, the cabin temperature inside of our parked cars can quickly reach scorching levels. A study by Levinson and associates in 2011 measured that the cabin air temperature in a black car can increase by nearly 35 degrees Celsius in just an hour. The interior air temperature increases because the heat from the Sun is able to penetrate into the car cabin but yet becomes trapped inside it. To understand why this happens requires us to delve deeper into the topic of solar radiation.



Why does the air temperature in our car cabins increase so rapidly. And what methods can we use to reduce this effect? (photo from [www.nbcconnecticut.com](http://www.nbcconnecticut.com))

Solar radiation is the energy that is emitted from the Sun in the form of photons. Each photon carries a fixed amount of energy which determines the amount that photon vibrates. The distance moved by the photon during one of its vibrations is known as its wavelength.

Photons emitted from the Sun have a wide range of energies and wavelengths, and this whole range is known as the Sun's electromagnetic spectrum. Almost all of the energy that are emitted from the Sun are in the wavelengths between 150 to 4000 nanometers (nm). But upon reaching Earth, wavelengths greater than 2500 nm are absorbed by our atmosphere's water vapor and carbon dioxide, whereas wavelengths lesser than 290 nm are absorbed high in the atmosphere by nitrogen and oxygen. Thus, the solar radiation finally reaching us at the Earth's surface usually has wavelengths between 290 to 2500 nm.



Electromagnetic spectrum. Solar radiation reaching Earth's surface ranges from 290 to 2500 nm which is made up of three groups of wavelengths: UV (ultraviolet) from 290 to 400 nm, VL (visible light) 400 to 700 nm, and IR (infrared) 700 to 2500 nm. Only the VL spectrum is visible to us. All three components, UV, VL, and IR, contribute to warming our cars.

The energy the photon carries is inversely related to its wavelength. This means the longer the wavelength, the lesser the energy each photon carries. In contrast,

the shorter the wavelength, the photons carry higher amount of energy. This is why shortwaved X-rays and gamma rays are dangerous because they carry high amounts of energy. In contrast, longwaved radio and mobile phone signals are safe because they carry much lesser energy.

When solar radiation hits the car glass windows, one part of the radiation is reflected off the glass, another absorbed by the glass, and the last is transmitted through the glass. Reflected solar radiation does not contribute to warming, but absorbed solar radiation does: by heating up the glass and warming the adjacent air (both inside and outside the car cabin). It is however the transmitted solar radiation that contributes to the bulk of warming. Once inside, the transmitted radiation will be absorbed by the various parts of the car cabin such as the dashboard, steering wheel, carpets, and car seats. As more incoming radiation is absorbed, these car interior surfaces will become increasingly warmer and, in turn, increasingly warm the interior ambient air.



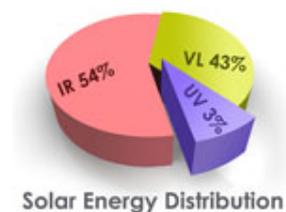
When incoming solar radiation hits the car glass, a portion of is reflected, another absorbed, and the rest is transmitted (photo from [www.johnsonwindowfilms.com](http://www.johnsonwindowfilms.com)).

It is important to note that all objects with temperature will emit radiation. The Sun, for instance, is very hot, so it emits relatively shortwaved radiation which contains high amounts of energy. Cooler objects, in contrast, would emit longwaved radiation because of the lower energy levels.

Consequently, these car interior surfaces, like any objects, would also emit

radiation but, compared to that coming from the Sun, the radiation emitted from these interior surfaces carry much lower energy levels and thus have longer wavelengths. And because the outgoing radiation have lesser energy, they are unable to exit the car cabin. The outgoing radiation become trapped. More heat enters than exits the car, so heat builds up inside the car.

As mentioned earlier, the range of electromagnetic spectrum from the Sun that finally reaches Earth is between 290 to 2500 nm. Three important groups of wavelengths exist in this range: ultraviolet (UV; 290 and 400 nm), visible light (VL; 400-700 nm), and infrared (IR; 700 to 2500 nm). The proportion of these three wavelength groups vary, but typically, UV accounts 3% of total solar radiation, VL 43%, and IR 54%. Because of its high energy levels (thus, shorter wavelengths), UV is dangerous to health (e.g., causes sunburn, skin cancer, and eye damage) and can degrade object surfaces. VL is part of the electromagnetic spectrum which we can detect with our eyes; thus, this spectrum is visible to us. Both UV and IR, however, are not visible to us. But it is these three wavelength groups, UV, VL, and IR, that collectively contribute to warming our car cabin.



It is not just infrared (IR) that contributes to warming but all the three components of solar radiation: IR, ultraviolet (UV), and visible light (VL) (photo from raytech.com.my).

The car interior does not warm uniformly. Some parts are much warmer than others. In a typical hot day in Malaysia, the dashboard can reach a scorching 80

degrees Celsius, the front windshield 70 degrees Celsius, and the interior ambient air 50 degrees Celsius.

Several methods can be used to cool the car cabin. Solar-powered air ventilators can be installed at the car windows that can draw out the hot air in the car cabin and replace it with the cooler external air. Studies by Rugh and associates in 2007 showed that these ventilators reduced the maximum temperature at the windshield and the dashboard by a maximum of 2.3 and 8.3 degrees Celsius, respectively. Likewise, Flores and associates in 2008 showed that the air ventilators reduced the ambient car cabin air by a maximum of 7.4 degrees Celsius. However, these air ventilators typically suffer from having low air flow rates due to low-powered fans.



Mechanical air ventilators cool the car cabin by drawing in cooler air from outside into the cabin (photo from <http://i.ebayimg.com>).

Instead of using mechanical air ventilators, leaving an opening (gap) in the car windows could also cool the car cabin by helping to circulate the flow of warm and cool air between the car cabin and the exterior. Kayiem and associates in 2010 showed that by leaving a 20-mm gap in the front side windows helped to reduce the front air temperature in the car cabin by as much as 10 degrees Celsius. However, there was little cooling effect when only the rear side windows were winded down to leave the same 20 mm gap. This difference in cooling effect between the front and rear side windows could be due to the higher temperature difference between the front ambient air and the exterior air than that between

the rear ambient air and the exterior air. Recall the dashboard temperature can reach as high as 80 degrees Celsius, and this is a source of much heat exchange in the front car cabin area as compared to the cabin rear.

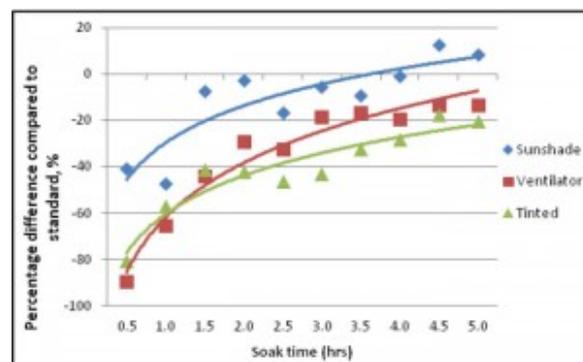
Nevertheless, use of mechanical air ventilators or leaving gaps in the car side windows can pose a security risk as well as encourage entry of more dust into our cars.

One popular and economical heat rejection method is the use of reflective sunshades. Local studies by Al-Kayiem and associates in 2010 and Jasni and Nasir in 2012 showed that sunshades are highly effective to reduce dashboard and windshield temperatures by as much as 30 and 20 degrees Celsius, respectively. However, compared to window tints, sunshade has been shown to be surprisingly far more effective in cooling the dashboard. Window tinting, for instance, cooled the dashboard by an average of only 7 degrees Celsius (with a maximum reduction of 12 degrees Celsius). Nevertheless, given enough time, the car cabin temperature under the protection of a sunshade would eventually reach the same heat levels as that without a sunshade protection. A sunshade placed only in the front windshield also offered little cooling effect to the rear of the car cabin.



Reflective sunshade placed behind the windshield can cool the dashboard considerably but is less effective in cooling the ambient air in the car cabin (photo from [www.expeditionportal.com/forum/threads/64273-Front-window-sunshade](http://www.expeditionportal.com/forum/threads/64273-Front-window-sunshade)).

Research have shown that window tinting is overall the best heat rejection method. Jasni and Nasir in 2012 compared the car cabin temperatures protected with a window tint (85 and 65% IR rejection rates for windshield and other windows, respectively) and that with a sunshade (placed on all car windows). They found that window tinting was more effective than the sunshade in cooling the car cabin temperature (front and rear ambient air). There was instead little difference between the car cabin temperature with and without the sunshade protection. The sunshade only cooled the car cabin by an average of 2 degrees Celsius (with a maximum reduction of 6 degrees Celsius), whereas the tint cooled by an average of 5 degrees Celsius (with a maximum reduction of 8 degrees Celsius). Jasni and Nasir also found that air ventilators performed better than sunshade in rejecting heat but not as well as the window tint.



Window tint cooled the front ambient air inside the car cabin more effectively than other methods such as the reflective sunshade (placed on all windows) and the air ventilator (chart from Jasni and Nasir, 2012).

Having a cooler car cabin brings several more advantages other than just giving a better thermal comfort. A cooler car cabin reduces the workload of the car's air-conditioner (AC). Rugh and associates in 2001 estimated that for every 1 degree Celsius reduction in the car cabin temperature of a Ford Explorer reduces the AC compressor power by 4.1%. Likewise, Levinson and associates in 2011 estimated that by reducing the car cabin temperature of a Honda Civic by an average of 5 to 6 degrees Celsius, the car's AC workload is reduced; thereby, lowering fuel consumption by 0.21 L per 100 km and lowering emissions of greenhouse gases such as carbon dioxide by 4.9 g per km and nitrous oxides by 9.9 mg per km.

Lastly, window tints have another major advantage over some heat rejection methods: window tints operate at all times even when the vehicle is moving. In contrast, sunshades and air ventilators have to be manually setup and removed each time the car is parked or driven.



Window tint has been shown by research that it is the overall best heat rejection method for cars. Unlike sunshades and air ventilators, window tints do not have to manually setup and removed each time we park or drive our cars (photo from [raytech.com.my](http://raytech.com.my)).

Recall that all three wavelength components of solar radiation (UV, VL, and IR) are responsible for warming the car cabin. An effective window film or tint is consequently one that filters out all or at least a large portion of the UV and IR components. The visible light, VL, component cannot be completely filtered out; otherwise, we would not be able to see through the car windows! This also means it is impossible to have a perfect 100% heat rejection window tint because this method would also require the complete removal of the essential VL component.

**It is impossible to have a perfect 100% heat rejection window tint because this**

# method would also require the complete removal of the visible light component.

Some car owners, however, deliberately choose window tints that have low visibility levels. Such dark tints or tints with high VL rejection rate are dangerous because these tints can cause road accidents. A 2004 report by Baldock and associates from the Centre of Automotive Safety Research argued against such tints because dark tints placed even on the side windows can make it harder for a driver to see other cars, cyclists, and pedestrians at night, particularly when the driver is turning, dealing with the glare of headlights, or stopping at intersections. Dark tints also prevent other road users to see into a car to assess the intentions of the driver or to see that if the driver has seen them.



View of a pedestrian at night. No window tint is installed. Compare this view with that below (photo from Baldock et al., 2004).



View of the pedestrian is greatly obscured when 35% VLT (allowing only 35% visible light through) window tint is installed. Turning the car right would risk hitting this

pedestrian (photo from Baldock et al., 2004).



The side windows of a neighbouring car are sometimes needed to enable us to see through them to notice other road users, or in this case, a cyclist. No window tints are installed here. Compare this with below when dark window tints are installed (photo from Baldock et al., 2004).



The danger of tints with high VL rejection. The side windows of a neighbouring car are installed with 35% VLT (i.e., enabling only 35% visible light through). In this case, the incoming cyclist is greatly obscured by the dark tints. Since the light is passing through two side windows, the light transmission level is actually  $35\% \times 35\%$  or only 12.25%

(photo from Baldock et al., 2004).

Consequently, an effective window tint is one with a high rejection rate for IR and UV and at the same time allowing in a comfortable VL level. In Malaysia, the law states that VL rejection for car window tints installed on the windshield should be no more than 30% (i.e., 70% VL transmission or VLT).

The [second part](#) of this series will discuss about the make up of window films and how to choose the correct one for our cars.

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# My Bella TV interview: Malaysia's falling proficiency in English - Should we be worried?

A [recent survey](#) by [Education First](#), a Singapore-based English school, found that Malaysia's competency level in English was the highest in Asia (beating even Singapore), and Malaysia was ranked an impressive 11th-position out of 60 countries. A similar excellent result for Malaysia was also obtained in the first survey in 2011.

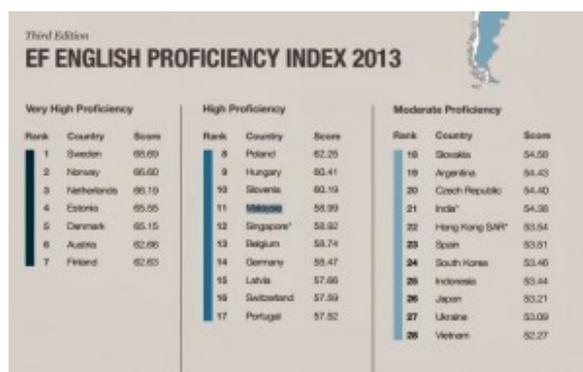


Prawn cock, anyone? Yet more evidence of poor command of English in Malaysia.

The problem is, few Malaysians believe it - and rightly so. This is because EF's two surveys contradict sharply with what we Malaysians experience everyday

about our English language command.

The main fault with EF's survey is this survey is done via online with no random sampling of participants. In Malaysia, most online users are urbanites with a higher command of English than those in more rural areas. Moreover, those who voluntarily take the EF's survey are most probably those who already have a good command of English. Ask ourselves this: would someone with a poor command of English voluntarily take EF's survey? I don't think so.



Education First's (EF) two surveys (2011 and 2013) show that Malaysia is ranked impressively high in the world in English competency. Unfortunately, even Malaysians do not believe these findings (photo from harimaucapitol.com).

I was recently invited for a second time to [Bella ntv7 show](#) (Nov, 26, 2013), hosted by [Elaine Daly](#). I came to this show willing to talk about the standard of English in Malaysia and why our command of this language is so poor.

Below are the questions given to me prior to the show. Although I was not asked some of these questions, I placed them here with my answers for my blog readers.



On Nov 26, 2013, I appeared on Bella ntv7 programme to speak on the falling standard of English in Malaysia, my experience at my university, and what we can do Malaysia's falling competency level in English. Also invited were Haris Hussain (Assoc. Editor of NST Production) and Chook Yuh Yng (Country Manager of Jobstreet). Seated far right is the Bella host, Elaine Daly.

## **So we keep on hearing that the undergraduates are lacking on English proficiency. But whose fault is that? Where does this problem start?**

The underlying problem lies in the social element. Malaysians communicate with one another in the language in which they are the strongest and most comfortable. And the language Malaysians choose to use to communicate typically isn't English but their mother tongue: Chinese, Malay, or Tamil. According to a survey in 2001, only 2% of Malaysians (less than 400,000 people) have English as their first language.

Malaysians are proud of their mother tongue and will defend it because their mother tongue is a part of their culture. Malaysians in general have no problems of learning English as an additional language, but they will put English in its place; that English is a foreign language, that people who speak English frequently are the elite minorities, and that English is typically useful only in

international relations such as in international business or politics.

In other words, Malaysians learn their mother tongue and English in two different contexts: one as part of their culture (their mother tongue) and another (English) as a foreign language to be used only in official or formal occasions.

Another important problem or reason why English proficiency is low in Malaysia is the lack of practice among Malaysians. The mastery of any language requires frequent and prolonged practice. It is not enough just to learn English during English period at school. We need to apply a language in our everyday lives by practising speaking and writing the language outside school as well. This is what is lacking in this country.

However, we need to understand that Malaysia's problem isn't unique just to us. The same worries about declining English proficiency exist also in Hong Kong, Japan, Philippines, and India. The governments there have spent a lot of money and resources to increase English proficiency among the people but with little success. I suspect the reason for this is the same as in Malaysia: lack of practice in English and seeing English as a foreign language to be used only in certain specific and narrow circumstances.



The falling standard of English in Malaysia. Only for the camera: you would learn better reading a English-language book instead, ladies (photo from thestar.com.my).

**It is agreeable that education starts at home. But there's so many that the parents can do especially when they have to work and maintain the household. Isn't it the school's responsibility to brush up our child's English skills? Isn't that why we send our kids to school in the first place?**

It is wrong to think that education only starts and ends at schools. The home and the parents can have a large impact, sometimes an even bigger impact, on their children's education success. Yes, parents cannot always teach everything because some subject matter are out of the expertise or know-how of the parents. But what is more important is the parents must be aware of what is currently being taught at school and how their child is progressing in school. That way the parents can remedy any shortcoming or conversely, encourage any key learning strengths in their child.

Interestingly, studies have shown that the most important factor in the success of a child's learning isn't the size of classroom but in how well the parents monitor their child's learning. In other words, the parents' awareness and involvement of their child's learning progress is very important.

Parents may be busy working but that is no reason to neglect their children's education or to outsource all or a large part of their education to schools or someone else.



Three students were also interviewed about their experience on English competency levels in their college.

**Speaking on behalf of the parents watching, maybe the parents don't have good command in English as well. And that is why they don't practice it at home and expect a more professional education (school) to do that job. What is your opinion on this?**

Yes, if the parents don't speak English, their children are in a disadvantage because they may not be able to practise English at home. But this isn't a critical, unsolvable problem. Again, as I mentioned earlier, the parents' involvement in their children's learning progress is very important. Parents cannot teach everything; no one can. Parents don't have to have PhDs in mathematics to encourage the love of mathematics in their children. So why the different standard for English language?

There are ways to ensure that their children's weaknesses in learning can be overcome. To increase English proficiency, the children can be enrolled in English classes or in social activities where English is widely spoken among members or participants. Put the children in an environment where English is spoken intensively. English-language reading materials with genre which the children enjoy can be bought to strengthen reading and language skills.

**Some young adults are embarrassed to speak in English, especially when they are not sure on their grammar/pronunciation and afraid they might say the wrong thing. Can't we relate to that problem? How do we overcome this?**

Yes, it is true that some - but not all - youngsters would feel embarrass to speak English for fear of being evaluated by their teachers or by native speakers. But there is simply no shortcut or some secret technique to a successful proficiency in English. It still takes hard work and practice, practice, and more practice.

When I first started working as a university lecturer, I remember having one freshman (first year undergraduate) telling me that he wouldn't be able to speak

to me any more. I was of course surprised by his admission. When I asked him why, he replied that he wasn't used to speaking in English. Lo and behold, six months later when I met him again, he was conversing with me with fluent English. I think some students underestimate their ability in English. It sometimes takes some coercion to force them to speak and they will readily speak in English. It might not be perfect English, but it is seldom as bad as they had initially thought. Besides, their English would often improve after some practice.



As the three students were interviewed, the other guests and I were seated at one corner as some questions were also directed at us.

That said, however, I had a Malay student many years ago who tried to speak to her other Malay friends in English. But she was treated as an outcast because her friends felt it uncomfortable and strange to speak in English among friends, outside class. Unfortunately, it is similar to the Chinese who feel a Chinese who speaks English too much is like a banana: yellow on the outside but white in the inside.

This again comes back to the social element on why English proficiency is declining in Malaysia. Many Malaysians see English like a foreign language, not part of their culture, a language used only in official or international activities, and a language used only by elite minorities.

**In your opinion, what is the biggest mistake that most young adults make when it comes to mastering English? Are they unwilling to seek**

## **the extra help, are they unwilling to consult the dictionary, are they embarrassed to make mistakes?**

Most youngsters are not fully aware of the importance of English in their careers. Yes, they understand the importance of English, but they fail to fully appreciate its importance of English mastery in their career and learning. They might believe that English proficiency can be achieved later or when they need later in their career. But English language mastery takes years to achieve; it takes hard work and lots of practice.

This is a shame because youngsters are self sabotaging their careers.

## **Many young adults can relate to this. Since young, we are taught mostly from books. It is not a surprise when we are stronger in writing than speaking. How do we overcome the problem of stronger in writing than speaking?**

I am always skeptical when people tell me that they are better in writing than speaking in English. I think people often underestimate their verbal proficiency and overestimate their writing proficiency in English. I have some students telling me the same thing, but when I read their written work, I am often an English teacher first and a science teacher second.

I spent more time correcting their English grammar or rewriting their sentences than checking their scientific facts, analysis, interpretation, and discussion of their work. I also have students expressing their confidence in the written English but only to be found out when they take international English exams such as TOEFL or IELTS. They can't even meet the basic competency level.

We need to understand the difference between spoken and written language. When we learn a language, we often learn to speak the language first. Sometimes speaking comes naturally especially after exposure for prolonged periods to the language. But writing (and reading) needs to be taught. Writing is not speech written down on paper. Writing is harder because spelling and grammar must be

correct. Speaking uses more informal and simpler sentences than writing. Speakers receive more immediate feedback and respond correspondingly in case the spoken message is misunderstood or unclear. Writers, on the other hand, work in solitary, receives no immediate feedback, and must consider the level of interest and knowledge their readers needs to know about a given topic.

So, it is untrue that one can be more competent in written than in spoken English.



The show ended by having all three of us back to the hot seat to have our closing remarks.

## **In your opinion, what needs to be fixed quickly? What can the schools do? Or the parents do?**

Malaysians can be a pampered lot, always asking for things either to be free or as cheap as possible. But Malaysians need some tough love: a kick, so to speak, to be coerced to master the English language. A simple pass in English is not enough. Job promotions, civil service jobs, university entrance, and scholarships should require mandatory and higher competency level in English. Even salaries can differ depending on how proficient a person is in English.

## **There are some parents who has this mindset of “We live in Malaysia, we work in Malaysia, so why English is THAT important?” How would you address this kind of mindset?**

Such parents are naïve because they fail to see the world today has evolved. It is no longer like before. In the 1980s and 90s, Malaysia, Singapore, Taiwan, and

Hong Kong were favorite places for the manufacturing sector because goods produced here were cheaper with lower costs and wages. However, such competitive advantage is never for long because wage costs will inevitably rise. Today, it is China that offers the lowest cost of production.

Today Malaysia needs to focus on high value activities such as research and development (R&D) activities. Consequently, it is very important that the educational level of the country's workforce increase to maintain Malaysia's competitive advantage as we lose our advantage in less skilled areas to countries in lower development chain. And it isn't just Malaysia thinking like this. Many countries like Norway, India, and Singapore are aiming to enhance critical thinking and creativity in their respective citizens. This knowledge-based economies require smarter people, and a handicap in English can be a stumbling block in achieving this goal.

We talk about the importance of English proficiency in Malaysia, but our country also needs to be proficient in science. Consequently, there is a close relationship between science and English, at least for Malaysia. This is because English is the lingua franca of science. Books, magazines, scientific articles, and documentaries are mostly in English. Malaysians unfortunately do not write many books either in English or in another language, and Malaysians do not also translate many books.

Consequently, low levels in English proficiency means Malaysians are missing out on current and important issues. Malaysians will have to wait until the information gets translated from English into our comfortable language, if it gets translated at all.

So, in many ways, Malaysia should worry. Low proficiency in English and coupled with low reading levels and low science literacy are harming our nation's future and growth. Two international assessment on science literacy paint a disturbing trend for Malaysia. [PISA \(Programme for International Student Assessment\)](#) and [TIMSS \(Trends in International Mathematics and Science Study\)](#) separately showed that the science literacy among Malaysian students have been declining steadily throughout the years, so much so that Malaysia now ranks among the lowest in the world in science literacy.

So when you observe such a declining trend, it is no surprise then that the Malaysian government has reverted back from using English to the Malay

language as the medium of instruction in schools. Malaysia have attempted to kill two birds with one stone. Instead of teaching science and mathematics separately from English, it was hoped that the English language could be taught simultaneously as science and mathematics are taught. While this system worked in some European countries like Finland, this approach was not successful in Malaysia.

So, while I understand the government's decision to revert back to Malay as the medium of instruction, we should also be aware that an outlet to increase English proficiency has been sacrificed in the process.



Increasing globalization means it is not only important to learn and master the English language but also to be multilingual as well. Parents need to understand and appreciate this (photo from [focis.wayne.edu](http://focis.wayne.edu)).

## **In your opinion, what is the standard of English that the employers are looking for?**

The higher we go up the corporate ladder into increasingly upper management levels, the importance of English proficiency becomes increasingly more important. In fact, English proficiency can be one of the criteria for job promotions. This is true in Malaysia and even in Hong Kong. Employers expect not only high levels of knowledge and technical skills, but also the ability to communicate, think, and learn; ability to work in teams; and the person's attitude and adaptability.

As I mentioned earlier, the world today has evolved. Globalisation is not some buzzword or a theoretical idea, but it is already happening right now, whether we like it or not. Exchanges of goods and services, transfer of knowledge, and

mobility of people from one country to another is today more rapid, seamless, and extensive. So while we talk a lot about mastery of English, the challenge today is also the mastery of two or more languages.

It might be surprising to some to learn that English is only the fourth most widely spoken language in the world. Mandarin is the most widely spoken language. But if we include the number of speakers for the second language, English moves up the rung to the second most widely spoken language with Mandarin still firmly anchored in the first spot.

Interestingly, the number of English native speakers are declining steadily over the years. Likewise for Mandarin native speakers. Instead, the number of native speakers for languages such as Arabic, Hindi, and Spanish see a steady increase. In the 1990s, more than 80% of the web content is in English, in 2000, the proportion was 50%, and in 2005, 30%. Most students who opt to study overseas still go to universities where English is widely spoken, but the number of students opting to go to non-English universities are also rising. So while English remains the most dominant language, it is a mistake to believe mastery of a single language such as English is sufficient. Globalisation means multilingualism proficiency is essential.

Many nations are looking to China. The country is fast growing into the world's largest economy. China is also pushing Mandarin as a foreign language to some countries, just as English is a foreign language to other countries. But at the same time, China is also pushing to increase the people's proficiency in English. English is a compulsory language for students beginning Year 3, and in some schools, Year 1. Job promotions for Chinese police officers pre-requisite some basic level in English proficiency.

So at the end, globalisation means it is not enough just to learn English. We need another language or two. We need to be multilingual. So, in this perspective, Malaysia, a multi-cultural and multi-lingual nation, is in an advantageous position.



Malaysia is in an advantageous position, being a multi-cultural and multi-lingual nation. However, Malaysia needs to be proficient in these languages and in English to compete in the world (photo from [theagora.blogspot.com](http://theagora.blogspot.com)).

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*You can watch this Bella episode for free at [tonton.com.my](http://tonton.com.my), Episode 231.*