Class:	18506	A	Group:	Team Mazer	No of Times Submitted:	4	Date Submitted:	9 November 2017
Memb	ers:	Zharfan (leader	·), Hannah, Zhi Zh	ni, Andy, Xiuhua				
Task & Choice of Topic:		Staying Safe in	the Sunshine					
					Signatu	ire of PW Tutor: _		Date:
	PROBLE	M			What evidence do you sources?	have from <u>secono</u>	you need back up y How do y (Surveys: (Interviey Craft the	ner types of evidence do from primary sources to your secondary sources? you intend to obtain them? Where, when, who?) ws: Who, when?) question to ask in order to our required evidence.
1a)	Evidence severity,	/prevalence of the Exposure to ultra	s, expert opinion e problem violet (UV) radia) that shows the existence and tion is the leading cause of sk non cancer amongst men and	in [1] <u>http://www.skincan</u>		n/uva-	·
	•	women respective Singapore is locato to the equator. C	rely in Singapore Ited on the equa- loser to the equa-	•	o-uv-radiation [2]https://www.nccs.co	om.sg/patientcare	<u>/what</u>	

	less of the harmful UV radiation can be absorbed by the atmosphere.[3] Hence Singapore has the highest risk of exposure to UV radiation. It has one of the highest average UV index scores [4] (SEVERITY) • Global phenomenon of climate change will decrease the Earth's ozone layer and allow increasing levels of UV radiation to penetrate the atmosphere. [5] (INCREASING PREVALENCE)	[3]http://www.who.int/uv/faq/whatisuv/en/index3.html [4]http://www.who.int/uv/intersunprogramme/activities/uv_index/en/index3.html [5]http://www.who.int/globalchange/climate/summary/en/index7.html	
b)	Why is there a need to solve this problem?/ What is the significance of the problem? Impact (short/long term, direct/indirect) on individuals/community/society Loss of critical advantages/benefits		
	- National Cancer Center Singapore states under Causes and Risks, that skin cancer "is most common in the sun-exposed area" and "appears in sun-damaged skin". It also mentioned that "Ultraviolet radiation from the sun is the most important risk factor of melanoma and Nonmelanoma Skin Cancer."[1] - Foreign sources (Cancer Council Australia) also confirm that exposure to UV radiation is the main factor that causes skin cells to become cancer cells. Almost all skin cancers (approximately 99% of non-melanoma skin cancers and 95% of melanoma) are caused by too much UV radiation from the sun [2]	[1]https://www.nccs.com.sg/PatientCare/WhatisCancer/TypesofCancer/Pages/skin-cancer.aspx?p=/PatientCare [2]https://www.cancercouncil.com.au/63295/cancer-prevention/sun-protection/sun-protection-sport-and-recreation/sun-protection-information-for-sporting-groups/how-ultraviolet-uv-radiation-causes-skin-cancer/	
	Skin cancer incurs sufferings: - Melanoma and nonmelanoma skin cancers can be invasive. As well as growing across the surface of the skin, tumours can sometimes grow down through the layers of skin. If the tumour grows through the wall of a blood or lymph vessel, cancer cells	[3]http://www.cancerresearchuk.org/about-cancer/causes-of-cancer/sun-uv-and-cancer/how	

	can break off and spread to other parts of the body. [3]	-the-sun-and-uv-cause-cancer	
2	What are the needs of the people facing this problem? Ensure the target group defined is homogeneous i) Explain why it is important/necessary urgent to deal with this target group; either: - have they contributed extensively to the problem - have they been affected by the problem - can they significant influence on the problem ii) state the relevant needs preferences characteristics of the target group that can be used to customize your solution for greater effectiveness Target group: Secondary school students (13-16 year old teenagers)		Online survey of the target group rationale for target group: 1. How many times a week do you go out in the sun for more than 20 minutes? [] Less than 2 times [] 2 - 4 times [] 5 - 7 times [] More than 7 times
	Rationale: Damage caused by unprotected sun exposure in adolescence are latent risk for skin cancer in adulthood (especially melanoma, the most aggressive type of skin cancer). - Epidemiological studies indicate that sunburns in prepubertal children are associated with an increased risk of melanoma later in life [1] - Besides UV-induced skin damage manifest in children, harmful longer-term effects occur, that are latent until later in adulthood. It is possible that sunlight exposure during childhood and adolescence confers a greater increase in risk of melanoma compared with risk incurred by exposure at older ages. [2][3]	[1]https://www.ncbi.nlm.nih.gov/pmc/articles /PMC3768291/	2. Which activities contribute significantly to the time you spend in the sun? (Select all that apply) [] CCA [] PE lessons [] Leisure Activities [] Others 3. What forms of sun protection do you usually* practise? (Select all that apply) *usually = almost all the time when you are in the sun
	Need/want to spend significant amount of time outdoors (forced due to PE or otherwise such as sports hobbies etc) - Data about the amount of solar UV received by children and teenagers are relatively few but suggest that around	[2]https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3409870/#R6 [3]http://cebp.aacrjournals.org/content/16/5/	[] I do not have a habit of practising sun protection [] Walking in the shade

	 40–50% of total UV to age 60 occurs before age 20.[2] Children/teenagers in Singapore spend 3.24/h a day outdoor. [4] Various outdoor sports like jogging (ranked 1st), soccer (ranked 3rd) and cycling (ranked 9th) are among the top 15 regular sports teenagers (13-19 year old) do.[5] 	991.long [4]http://bjo.bmj.com/content/93/8/997 [5]https://www.sportsingapore.gov.sg/about-us/~/media/corporate/files/about/publications/national%20sports%20participation%20survey%202011.pdf (page 23)	[] Wearing caps/sunglasses and/or umbrellas [] Wearing long-pants/long-sleeved shirt to cover up [] Wearing sunscreen
	Profile Traits: Teenagers are Dependent Usage of Mobile Phones 97% of Singaporean youths (15-24) use smartphones while 99% of them use the internet.[6] Using social networks, sending or receiving emails and instant messaging are the top 3 internet activities teenagers (15-24) do on mobile equipments.[6] Competitive Singaporeans are competitive: 6 in 10 included 'kiasu' in their top 10 perception of Singapore society. According to a joint survey by aAdvantage Consulting Group & Barrett Values Centre, 57.7% out of 2000 Singaporean respondents have chosen Kiasu within their top 10 perceptions of Singapore society. 41.15% included the characteristic 'competitive,' while 32.65% included 'self-centred.' [7]	[6]https://www.nyc.gov.sg/images/initiatives/resource/youthstatsinbrief/NYC_YSIB_FA_2016.pdf [7]http://www.aadvantage-consulting.sg/UploadedImg/files/NVA-Press-Release-Society.pdf	
3	Why is it problem? Causes: identify and explain the reasons that give rise to the problem at hand Gaps: identify the missing factor in current measures that could have		

guaranteed success		
- Explain briefly what the current measures are		
- Explain how the missing factor caused current measures to be		Online Survey of target group
unsuccessful		Factors:
Causes + Gap factor that reinforced causes		4. Why do you not practise sun
		protection? (Select the last opt
Current Measures:		you practise sun protection.
- NEA provides the hourly UV Index [1]	[1]http://www.nea.gov.sg/weather-climate/w	Otherwise, select up to 3).
	<u>eather-information/uvindex</u>	[] I do not remember to do so
Causes and Gaps in Current Measures:		[] I do not care about sun prote
- Apathy		[] I do not have sunscreen on h
- Lack of Convenient Access		[] I do not like the smell/texture
- Lack of Reminders (gap)		sunscreen
		[] I need to get more vitamin D
		[] I cannot use umbrella/wear
		wide-brimmed hat when engag
		outdoor activities
		[] It is too warm to wear long
		pants/long-sleeved shirts to cov
		myself in the sun
		[] I want a tan
		[] I practise sun protection
		Apathy:
		5. What are some of the effects
		overexposure to UV rays? (indi
		nil if you do not know any)

	6. On a scale of 0-10 (with 10 being
	extremely important), how
	important do you think sun
	protection is?
	Lack of Reminders:
	7. How often do your
	teachers/coaches remind you to
	practise sun protection in school?
	(Select the most fitting option)
	[] At every outdoor session
	[] More than half the times we do
	outdoor activities but not always
	[] Half the times we do outdoor
	activities
	[] Less than half the times we do
	outdoor activities
	[] Never
	8. Do you check the ultraviolet index
	before you go outdoors on a regular
	basis? (*regular: almost every time
	before you go outdoor)
	[] Yes
	[] No
	1

	SOLUTION		
4.	What is the first approach to address the causes / gaps? -> ADD METAPHOR /SYMBOLISM HERE <- (e.g. educate/encourage etc) state the approach and link to the cause/gap Approach 1: Evoke fear for consequences of UV overexposure - Since students have apathy for sun protection, the first step to alleviating the situation is to appeal to their emotions so they are motivated to take appropriate action.		
a)	 What platforms can we use to solve the problem? State the platform and rationale for choice of platform (for delivery+distribution) (i) Social Media Campaign: Persona Relatable: Teenagers can relate to the persona created and are more likely to become interested in the issue Prevalence: Majority of teenagers use social media [1] (ii) School-based Campaign: UV Camera Photo Booth Ease of access: many students can participate concurrently and with little hassle Element of fun: more likely to engage students as they are able to play around with their friends Immediate feedback: Understand that UV radiation has already damaged their skin 	[1]http://www.channelnewsasia.com/news/singapore/more-children-used-social-media-in-20 15-mda-7931844	
b)	What are the details of your first strategy? 1. State the concept/purpose. This needs to be linked closely to the cause/gap 2. Provide details on method, platform, steps, activities, etc. 3. Provide justification for why the details will a. address the cause		

b. suit the needs/preferences of target group	
(i) Social media persona: Details the life of a family member of a sufferer	
of skin cancer that is relatable to teenagers (being of their age and a	
student) so as to make the threat of such impacts more real and of	
interest	
 Short videos follow the story → makes content more interesting 	
and worth following, of a skin cancer patient from when they	
receive the news of contracting cancer to going through the	
recovery process → helps teenagers to understand the risks of UV	
exposure and their impacts to oneself	
- Includes flashbacks of practices before contracting cancer in	
contrast to the current → reminds teenagers of the undesirable	
practices and therefore the methods of self protection	
- Provides links to useful websites of organisations for the target	
group to get more details on issue	
- one video will be released each day for a total of 5 days	
(ii) UV Camera Photo Booth: a UV-camera photo booth will be stationed	
in the school canteen. Sunscreen will be provided at the booths for	
students to apply so that they can compare themselves before and after	
application	
- The screen shows students their own skin when viewed under UV	
light	
- allow them to see the damage already done to their skin	
by the sun that is not visible under normal conditions.	
- To be placed in canteens of schools → reaches out to many	
students in their free time	
- Coloured sunscreen - an element of fun to appeal to students	
What is the second approach to address the causes / gaps?	
(e.g. educate/encourage etc)	
(c.g. cadeate/encodiage etc)	

	Approach 2: Application of knowledge - After students learn the importance and the know-hows of sun protection, the next step is to apply and repeatedly practice the knowledge learnt over a long duration so that sun protection habits can be cultivated - This is done through providing an easily accessible platform for them to practice this habit and also through providing constant reminders about the need for sun protection [1]	[1]https://www.psychologytoday.com/blog/surviving-your-childs-adolescence/201201/adolescence-and-the-development-habits	
a)	What platforms can we use to solve the problem? State the platform and rationale for choice of platform (for delivery+distribution) Structural Support Programme: (i) UV alert + posters (to help students interpret data from UV alert) - Accessible: UV alert convert intangible threat of UV exposure into tangible warning that they can easily see (ii) Sunscreen vending machine: - Vending machines: - Availability: Target Group agrees that sunscreen are not readily available for their use (Using PRQ to justify), while vending machines make them available[1] - Minimal staffing cost while operating the machines all day [1][2] - Convenience: Purchasing items from the vending machine is easy and can be done at anytime of the day [2]	[1]http://www.straitstimes.com/singapore/sp h-rolls-out-vending-machines-for-newspapers [2]http://www.straitstimes.com/lifestyle/vending-machines-now-sell-gold-bars-shampoo-towells-and-more	
b)	What are the details of your second strategy? 1. State the concept/purpose. This needs to be linked closely to the cause/gap 2. Provide details on method, platform, steps, activities, etc.		

GROUP PROJECT PROPOSAL

3.	Provide	justi	fication	for wh	y the details will

- c. address the cause
- d. suit the needs/preferences of target group

(i) UV Alert Programme: serves as a platform to remind students in school, especially those playing sports under the sun (during CCA, PE etc.)

- UV alert
 - Traffic light alert: Displays different colours that correspond to UV index (information to be obtained from NEA[1]);
 - green for relatively low UV radiation levels (UVI 0-2), sun protection is not needed
 - orange is for moderate to high UV radiation levels (UVI 3-7), some sun protection is needed
 - red is for very high to extreme UV radiation levels
 (UVI 8-11+), extra sun protection is needed
 - To be placed at strategic outdoor locations such that it is visible from afar to students playing sports outdoors (i.e. field); similar to the lightning alert

- Sunscreen Vending Machine

- A vending machine selling sunscreen will be located near the school field to allow students to buy cheap, disposable sachets of sunscreen conveniently before going out in the sun[2].
- allow the students to readily access the sunscreen when needed. Hence, it would be easier to inculcate a habit from starting small[3]
- Free sunscreen period (about two months [4]): to allow students to dispense sunscreen at times needed.
- Beside the vending machines will be instructions on how

[1]http://www.nea.gov.sg/weather-climate/weather-information/uvindex

[2]]http://www.straitstimes.com/singapore/ap ply-and-reapply-sunscreen-for-thorough-prote ction

[3]Yes, You CAN Break That Cake Habit! Can't Survive the Day without a Sweet Treat? A New Book Says Kicking Bad Habits Is Easier Than You Think. (2012, April 11). *Daily Mail (London)*.

GROUP PROJECT PROPOSAL

6.	How well are the needs of your target group met through your
	solutions?

i) Target group receptivity look at target group profile/ common traits /preferences

ii) Effectiveness at changing target group (look at target group's' profile, needs)

(where it overlaps with justification for target group, decide where you prefer to put the info)

iii) Long-term sustainability (within same target group or expansion to a larger target group, etc)

i) Solution 1 (campaign):

Campaigning allows a wide outreach to most youths in SG due to the platforms used

- School (secondary education): most students (98.3%) go to government/govt endorsed schools
- Social media: Singapore teens are tech savvy, 99% are internet users and 97% are smartphone users; 78% of teens in SG are also social media users [1]
 - In 2016, YouTube was the most popular social media platform (penetration rate : 75%) while penetration rate for instagram was 43% [2]

Campaign is sustainable in the long-term as

- Videos are a one-time production that can be re-uploaded annually for re-runs of the campaign

Expansion is also viable as

Videos will be made public hence available to anyone

The campaign is told through a story as people respond more to

[1]https://www.nyc.gov.sg/images/initiatives/resource/youthstatsinbrief/NYC_YSIB_FA_2016.pdf

[2]https://www.statista.com/statistics/284466/ /singapore-social-network-penetration/ Online Survey of target group

Receptivity of TG:

9. To get students to understand the importance of sun protection, we plan to organise a week-long campaign consisting of two parts: -videos about the story of a 15-year-old whose mother suffers from skin cancer will be released on social media platforms such as Instagram, Facebook and Twitter over the course of a week -a photo booth with a UV camera and coloured sunscreen will be set up in school, where you can view yourself under UV before and after applying sunscreen Would you be willing to participate in such a campaign by watching the video and visiting the photo booth? [] Yes, I will watch the videos and visit the photo booths [] No, I will watch the videos only [] No, I will visit the photo booth only [] No, I will never watch the videos

nor visit the photo booth

GROUP PROJECT PROPOSAL

anecdotes than to simple statistics and facts [3], allowing us to make a more significant impact.

ii) Solution 2 (structural supports):

The programme targets at promoting sun protection in schools:

- secondary school students spend about 5-6 hours per week on CCA, and 4 hours per week on PE and Civics.[4]
- programme is implemented at locations most youths tend to be exposed to UV radiation (field, parade square etc.)

Programme is sustainable in the long term as:

- it requires little resources to maintain (only has to be restocked and undergo occasional maintenance)
- structural supports will be permanent once installed and can therefore be used by future batches of students

[3]http://www.npr.org/sections/goatsandsoda/2014/11/05/361433850/why-your-brain-wants-to-help-one-child-in-need-but-not-millions

[4]https://www.moe.gov.sg/news/forum-lette r-replies/moe-recognises-the-importance-of-b alance-in-holistic-student-development 10. Will you practise sun protection when reminded?

[] Yes

[] No

11. We plan to install a Ultraviolet (UV) Alert that will display 3 different colors based on the UV index (UVI) at that time (ie red when the UVI is high, orange when the UVI is moderate and green when the UVI is low). The UVI reflects the intensity of the UV radiation in the area. The alert is modeled after the lightning alert and will be placed at outdoor locations to urge students to practise sun protection such as using sunscreen or going into the shade when the UVI is high or moderate. Would the UV alert be an effective reminder?

[] Yes

[] No

12. To provide convenient access to sunscreen, we plan to install vending machines that sell sachets of

			sunscreen for one-time usage. These vending machines will be placed near outdoor locations where students play sports. Will you buy sunscreen from these vending machines? [] Yes [] No
7.	 Are there partners you can collaborate with? iv) Stakeholders receptivity look at their purpose/ vision/ style of operation current modus operandi towards your topic, past projects, capacity, constraints etc to determine if they are likely to be willing able to support your project 		
	 Block Up! or Banana Boat to sponsor sunscreen Precedence in sponsoring sunscreen sachets for Project UVRaydiant [1] Over the years, the range of merchandise peddled by these machines has expanded [2] → more companies acknowledge vending machines as a potential channel for marketing a wider variety of products (including sunscreen companies, need to reinforce with PRQ) 	[1]https://projectuvraydiant.wordpress.com/2 015/05/15/weekly-progress-15515/ [2]http://www.straitstimes.com/lifestyle/vending-machines-now-sell-gold-bars-shampoo-towells-and-more	
	NEA/MOE to fund for UV alert - The Meteorological Service Singapore (MSS) is Singapore's national authority on the weather and climate. It is an operations division under the National Environment Agency (NEA). One of its key department is the Weather Service Department, who provides round the clock weather forecasts, warnings, monitoring and	[3]http://www.weather.gov.sg/about-our-organisation/	

	assessment for critical sectors such as civil aviation, military, maritime, private/public agencies and the general public.[3]		
	 School to provide venue for campaign/structures Schools are likely to be supportive of health promotion programs With support from secondary schools, junior colleges and Institutes of Higher Learning, close to 20,000 students from 27 secondary schools and junior colleges and more than 10,000 students from the Institute of Technical Education Colleges, Nanyang Polytechnic, Republic Polytechnic and Temasek Polytechnic embarked on an active journey to accumulate steps every day.[4] 209 out of more than 360 schools, including junior colleges, have joined its Healthy Meals in Schools Programme (HSMP) - an initiative set up in 2011. [5] 	[4]https://www.parliament.gov.sg/lib/sites/default/files/paperpresented/pdf/2015/S.144of2016.pdf [5]http://www.straitstimes.com/singapore/education/more-school-canteens-serving-healthy-food-but-rising-prices-a-concern	
8.	Strengths and/or limitations to approaches/strategies Are there any other unique strength and/or limitation to your strategies that do not pertain to the above areas on target group and stakeholders? UV alert and Vending Machine - Limitations: can be only accessed in school - Strength: gradually encourages self-reliance Social Media Campaign - Limitation: students may not be aware of the release of the videos as they may not be following the social media account - Strength: permanency of the internet allows anyone to join in even when the campaign is halfway through its course		
	Overall		

- Limitation: costly	
 Strength: good synergy (step by step systematic process in 	
instilling habits)	