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Experimental Design for Assessment of Tourism TV Commercials – A case of BRICS

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ABSTRACT

BRICS (Brazil, Russia, India, China and South Africa) are all fastest growing economies. To promote tourism, one of the media vehicles being used by BRICS is TV (television) and through TV, the television commercials (TVCs). The objective of this study is to test an experiment model to assess relative importance of features (colour, sound and visual noise) of tourism TVCs for each member of BRICS. The analysis suggests that all the three features are found to have similar impact on overall effectiveness of the TVCs. However, with respect to different countries, features are relatively different in terms of viewers' preferences.

KEYWORDS: Experimental Design, TV Commercials, BRICS, Tourism

INTRODUCTION

TV Commercials are designed to inform, remind, persuade, and convince the viewers about products or services (Belch & Belch, 2013). They are designed with investment in different aspects, like colours and theme, location, background music and voice overs and other audio effects, and celebrity presence. We endeavoured to understand if visual noise, absence of audio, or absence of colours can affect TV Commercial viewers, and if so, what their respective contribution is.

BRICS is the acronym of Brazil, Russia, India, China and South Africa, all these nations are fast growing economies. It was predicted that by 2018 the total Gross Domestic Product (GDP) of BRICS nations would be more than the GDP of North American nations (Thorstensen and Oliveira, 2014). A report published by Centre of WTO Studies (2013) mentioned that BRICS, all in all together, accounted for more than 40% of the world's labour force. As per the WTO's General Agreement on Trade in Services (GATS), the BRICS committed to work together on various service sectors such as transportation, energy, environment, construction, financial, education, communications and tourism to name a few. As per the Centre of WTO Studies report (2013), tourism sector had shown tremendous growth potential which can also affect the other sectors such as handicrafts, aviation, transport and construction. As per the data released

by World Travel and Tourism Council (2016), Travel and Tourism industry's direct contribution to GDP for India and China has increased significantly, for South Africa the contribution is almost stable, while it shows decline for Brazil and Russia over the period of 2010 to 2016, the data is quite evident from the table 1 shown below.

Table 1. Travel and Tourism's Direct Contribution to GDP

Country	Travel & Tourism's Direct Contribution to GDP (in billion USD)						
	2010	2011	2012	2013	2014	2015	2016
Brazil	68	79	73	71	73	55	57
Russia	21	25	26	27	25	17	16
India	50	57	57	59	63	67	72
China	115	164	191	221	253	267	275
South Africa	11	12	9	9	10	11	12

Source: World Travel and Tourism Council (2016)

As per the World Bank (2015) data, tourist arrival and international tourism expenditure in all the BRICS nations registered significant increase between the period of 1995 and 2015 as highlighted in the table 2 below.

Table 2. Tourist Arrival and International Tourism Expenditure

Country	Tourist arrival in thousand		% Increase in tourist arrival	International Tourism Expenditure (in Billion USD)		% Increase in expenditure
	1995	2015		1995	2015	
Brazil	1991	6306	217%	3.982	20.356	411%
Russia	10290	33729	228%	11.599	38.436	231%
India	2124	13284	525%	0.996	17.686	1675%
China	20034	56886	184%	3.688	292.2	7822%
South Africa	4488	8904	98%	2.414	5.735	137%

Source: The World Bank (2015)

BRIC term was coined for the first time by Jim O'Neill in the year 2001, who was then Chairman of Goldman Sachs Asset Management. Initially the term was confined to Brazil, Russia, India and China. It was predicated that BRIC nations' share of world GDP would increase in the years to come (Global Economics Paper No: 66). In the year 2010, the term was expanded to BRICS because of induction of South Africa. BRICS nations are since then, working together to focus on cooperation between the member countries. The World Bank expected BRICS growth to pick up to 5.3% in 2017 (Emerging Equity, January 07, 2016). BRICS have been working in well-integration and have laid down objectives for their inclusive growth. One of the many important objectives is to promote intra-regional tourism. BRICS nations' convention on tourism took place at Khajuraho in India in the year 2017 (The Indian Express, September 2, 2016). The World Tourism Organization – a United Nation's agency (UNWTO) which is primarily responsible for tourism promotions, defines tourism as a cultural, social and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes. The benefits derived from the tourism industry far outweigh the challenges it poses. Tourism industry creates jobs, boosts various industries linked

to tourism, brings people of various cultures together and financially supports government and society at large (Soapboxie.com). Core sectors linked to tourism services are lodging industry (hotels, motels, cruise liners), travel agents/travel services, transport industry (airline, railway corporations, coach service, car rental services) and tourist attractions (theme parks and museums etc). For the growth of tourism industry, it is essential for governments to focus on infrastructure development (Jovanovic & Ilic', 2016). It also encourages locals to preserve their heritage and governments to support them through funding. Tourism as an industry is also spreading its wings. Unlike earlier times, the competition is ever increasing. All destinations are in a fierce battle against each other in a demanding global market. In the year 1950, 71% of total market share of tourism industry came from five most visited countries, contrary to 31% market share which came from the top five visited countries by 2011 (Global Report on City Tourism, 2012).

For the growth of tourism industry another major requirement is to promote tourist destinations. 'Boosterism' was the term used by Getz in 1987. It meant boosting or promoting city or town through tourism. The basic idea is that tourism is good, so it should be promoted. (Timothy & Tosun, 2003). Primarily, it is tourists who drive tourism industry. As per UNWTO a tourist could be a domestic, inbound or outbound visitor to a destination. Tourist may have various reasons to travel to a destination. Factors such as age, income, personality, cost, distance, risk and motivation influence choice of destination (Crompton, 1992). The desire for escape, rest and relaxation, adventure, health, pride are 'Push' Factors, whereas beaches, accommodation and recreational facilities, cultural and historical resources are 'Pull' factors (Uysal & Hagan, 1993). For instance, the colossal statue of Christ the Redeemer may attract tourists as a symbol of Christianity across the globe. For its artistic endeavours such as ballet, symphonies, Russia may attract huge number of tourist. One of the cradles of ancient civilization and the epic symbol of love Taj Mahal draws massive multitudes every year. So do a boundless bulwark - The Great Wall of China and the wildlife of South Africa. Countries therefore categories tourist destinations and promote them to grab tourists' attention in the best possible way. Various categories of tourism include adventure, cultural, pleasure and business. (Fennell, 2002). Other categories such as eco, nature, spiritual, heritage, sports, medical etc. can also be added in the list. When these constituents are presented to viewers or potential tourists through tourism advertising, they not only influence viewers' perception but also generate a halo effect (Forbes, March 19, 2015).

Therefore, one of the most vital tools of promotion continues to be television commercials. A study by Turner Broadcasting and Horizon Media partnered on with marketing-analytics company MarketShare found that TV advertising effectiveness remained steady during the time period of years 2009-2014 and outperformed digital and offline channels at driving key performance metrics such as sales and new accounts. (ADWEEK, June 09, 2015) Television Commercials (TVC) reaches to a large audience and importantly, it can target viewers as per demographics. TVC differentiates products/services and also grabs viewers' attention through multi-sensory appeals. TVC allows combination of text, images, sound, and motion and thus, creates a lasting impression in the mind-set of viewers. Humour, tagline/jingle, iconic characters are some of the components which make TVCs memorable and effective (Forbes, October 19, 2012). Slogans also plays crucial role and are used almost by every destination as a branding strategy (Pike, 2005). BRICS nations used slogans such as Brazil Sensational!, Reveal Your Own Russia, Incredible India!, China Like Never Before and Wow in Every Moment respectively. In order to create striking advertisings, advertisers use various themes such as emotional,

musical, rational, adventurous, romantic, youthful, bandwagon, endorsed, sensitive, statistical, plain etc. TVCs on tourism produced by every member nation showcase various themes mentioned above. Tourism TVCs portray natural scenery, lifestyle of people, various characters and their cultures.

Large number of researchers has done study on tourism industry. Many of them have used experimental study in their research (Chao et al., 2013, Gronhaug & Heide, 1992). There are two types of research designs: experimental or non-experimental. Except in case of natural experiments or field experiments, experimental designs are carried out in laboratories. One of the major criticism of experimental design is that the results obtained may not be generalized to external environment. Experimental designs are alternatively called as study design or research design (Knight, 2010). Compared to highly costly and impractical field experimentation, laboratory experiments are also an alternative worth consideration. Behavioural data collected in laboratory experiments is an accomplishment in the field of research as they play a vital role for analysis (Brüggemann & Bizer, 2016). Though in past three decades, the use of lab experiments have increased, but it has taken substantial time when it comes to research pertaining to the field of social sciences (Falk & Heckman, 2009).

LITERATURE REVIEW

The BRICS' objective is to create opportunities for greater cooperation through establishing stronger economic ties for growth and development (Tern Newsletter, 2011). The trade between all the BRICS nations increased fifteen times between 2001 - 2010, with rising annual incomes, purchasing power of these economies consumers have significantly improved (Tern Newsletter, 2011). Glosny (2010) noted that BRICS share similar belief that their own interest and voice were not correctly presented at the world stage. In the similar line Roberts (2011) mentioned that BRICS view the developed western countries as declining economies and opine that the global economy favoured the West. Stewart (2012) noted due to the global financial crisis, western countries had reduced their financial aids to developing nations, as a result of this, BRICS have increased their spending and development assistance, BRICS have also become part of international creditors, out of them China has already become a leading creditors as it has large foreign reserves. Roberts (2011) noted that BRICS have different specializations, China specializes in manufacturing, India in services, Russia and Brazil in commodities exporters, natural resources and agriculture. Cooperation between BRICS is also of great importance and it differs for every member nation, China uses it to strengthen its position as a leader of the developing world (Glosny, 2010). The grouping of BRICS is indeed a symbol of dynamic and changing world scenario, its members often meet to set the pace for their larger contribution at the world level (Stewart, 2012). Despite the fact that BRICS are very much similar to each other in terms of their aspirations, they have diverse political and economic background which creates undercurrents of geopolitical rivalry and creates obstacles in mutual cooperation (Elliott, 2007). Adding to this, China has been by far the most dominant nation in terms of economy, its share for the BRICS output is as high as 61%, on the other hand India's rise was modest up from 4% in 1990 to 6% in 2009, neither Russia nor Brazil posted any significant rise in their share of the global GDP in the last two decades (Cameron, 2011).

BRICS have been very successful in attracting the foreign direct investment (FDI), China has used most of the FDIs for the manufacturing activities, while Brazil, South Africa and Russia have used the FDIs for mining and exploiting their natural resources, on the other hand, FDIs

were utilized to boost the service sector in India. The goods exports from the BRICS also increased significantly, from 14% in 2001 to 24% in 2012 (Centre for the Study of Governance Innovation, 2014). Gwartney et al (2010) demonstrated that BRICS and other G6 countries were heading toward a form of crossvergence, which is will be based on the free economic policies. According to a World Economic Forum (2010) report, to do business within BRICS posed significant problems which had issues such as inefficient bureaucracy, corruption and access to financing in three of the nations out of five. Wilson et al. (2010) noted that expectations are quite high from the BRICS and the valuation gap for the same is much smaller, considering this BRICS were expected to post robust performance. A Goldman Sachs' Global Economic Paper (2011) mentioned that the world's economic focus will continue to tilt toward the BRICS, however, the transformation of BRICS has been half completed and there is a long way to go which required investors to look at the macro elements of these nations in order to expect above-average returns. BRICS Research Group's report (2011) mentioned some of the key performances of BRICS such as Brazil, China and India approving the IMF reform packages, bilateral money arrangements between Russia, China and India, infrastructure development projects between all countries and expanding trade and reducing protectionism.

Travel and Tourism sector is an important economic sector as it impacts various industries such as hotel industry, aviation industry, railways and other stakeholders such as restaurants, travel agents, local shop owners and handicraft makers as well. Doswell (1997) noted that tourism industry has become a major force in global trading and has become a dominant force for the rise and fall of many economies across the world. Travel and Tourism industry's total global contribution to GDP was as high as \$613.3 billion in 2016, at the same time the industry generated 292,220,000 employment opportunities across the world (Travel and Tourism, Economic Impact 2017 World Report). As far as the BRICS travel potential is concerned every country has a different figures and stark disparity between them. According to a BRICS tourism analysis (2013) 23.8 million Russians, 18.3 million Chinese, 7 million Indians and 5.2 million Brazilians travelled abroad.

BRICS tourism analysis (2013) provided a detailed picture of incorporated efforts by every country to boost tourism industry. In 2012, Government of Brazil realigned its marketing strategy to increase the tourists flow, the target was to achieve 300% increase in the foreign currency inflows and double the tourists arrivals by 2020. In case of Russia, Russia's tourism department pitched Russia as a tourism destination and as an investment avenue. The program was initiated by Russia in 2011 and had a quick result to show, as a result of promotional programs inbound tourism increased and it remained highest inbound visits in Russia for 15 years. Government of India's Ministry of Tourism has opted for tie-ups with the state governments to give boost to the tourism sector, well known advertising agencies were roped in by Ministry of Tourism to create television commercials to promote tourism sector. With the significant increase in the disposable income, China saw an increase in the tourism expenditure which led to more than 18 million Chinese opt for a tourism related activities. In South Africa the rapid growth of the middle class has its big impact on the growth of tourism sector, the promotion of South Africa as a tourist destination has done wonders to appeal to foreign tourists. In the year 2012 there was a 5% increase in number of tourist arrivals in South Africa, which was 2% higher than the previous year.

It should also be noted that climate has a big role to play in tourists choosing a destination. Climate has been considered as an important driver to promote tourism (Hu and Ritchie, 1993).

The importance of climate of a specific country has always been mentioned in the advertising materials of that country (Martin, 2005). For example, tropical countries promote good weather and a money back guarantee (Scott and Lemieux, 2009) and some of the advertisements focus upon frequent and intense wind for windsurfing (Martin, 2005). A certain climate has a big impact on the tourist arrivals, more so for countries such as Germany, Canada and the UK (Lohmann and Kaim, 1999; Scott and Lemieux, 2009). Timing of travelling to a specific country was also dependent on the climate (Lohmann and Kaim, 1999; Hamilton and Lau, 2005). Apart from the climatic conditions, the climate in tourists' home countries were found to be quite vitals for their tourism plan (Maddison, 2001). Some of the push factors play major roles such as unfavourable climate during the visit or during the previous year's visit (Agnew and Palutikof, 2006). Even for that matter a warmer summer by 1 degree Celsius was found to be creating increase in domestic tourism expenditure by 4% in Canada (Scott et al, 2008). A summary paper submitted to World Meteorological Organization by Scott and Lemieux (2009) commented that tourism marketing materials including advertising activities and web sites promoted the tourism activities, but little importance was given for the climate information. This point emphasizes upon the importance of advertising material including TV commercials, print advertisements and websites to promote a country's tourism and travel industry across the globe.

As far as advertising and tourism is concerned, there are two main thoughts used by researchers to describe economic effects of advertising. The first one is market power model, which views advertising as a tool of persuasion to create differentiation amongst the alternatives (Bain 1956; Comanor and Wilson 1979), the second view, based on the economics perspective emphasizes that awareness is key factor in creating demand for something (Stiglar, 1961). In the similar line Blackwell et al (2006) note that by pushing the marketing stimuli such as advertising, marketers could achieve higher level of awareness about their offerings. Walters et al (2007) mentioned that advertising is commonly used tool for promoting tourism. In similar line Mick and Politi (1989) emphasized that visual content with dominance would create lasting impression in a viewers' mind. Advertisement for a new offering or a new product generated more curiosity among consumers who had greater prior knowledge (Rethans et al. 1986). At the same time, Wood and Lynch (2002) figured that second advertisement of the same offering may alter the way a consumer thinks. One more important aspect about advertising is, it could influence consumers outside their own conscious awareness state. Incidental exposure to advertising plays key role. Janiszewski (1993) noted that incidental exposures increase liking for a brand. Shapiro et al (1997) mentioned that incidental exposures to commercials or advertising influenced the consideration sets of consumers.

Out of all the advertising mediums available to a marketer's disposal TV remains the most effective medium, and hence advertisers must adhere to a right combination of media vehicles, as TV generally plays a vital card for the return on investment as well (Elms and Galpin, 2009). Adding to this Hu et al (2009) note that TV commercials' effectiveness has improved from last several years. Treutler et al (2010) noted that TV is the most effective media vehicle when it comes to delivering emotional messages and for cognitive recalls. Heath (2009) mentioned that TV commercials could bring in the element of engagement, through which more attention and emotional response could be generated, TV engagement, therefore, could be judged as emotional rather than rational. Jamhour and Winiarz (2009) mentioned that even the growth of digital media has not impacted the clout of TV advertisements. In the similar line Braun and Callay (2009) supported the fact that despite the increased popularization of the internet, TV

viewing has actually increased. Rubinson (2009) explained about a study which analyzed 388 historic cases from 7 different advertising agencies. The study revealed that not only TV was effective media vehicle but it was also a leader in terms of raising awareness. Over the period of time, TV has become a permanent fixture of all types of households (Shah and D'Souza, 2008). As noted by Ciochetto (2004) TV advertisements are more effective than the print advertisements considering the literacy rate of target audience. Kotwal et al (2008) mentioned that the TV commercials not only influenced the purchase behaviour but also the social behaviour of the viewers. By using the television commercials advertisers could reach out to multiple target audiences (Bishnoi and Sharma 2009) such as children (Cruz, 2004) and teenagers (Massey, 2006). McGuire et al. (2001) noted that TV commercials have massive effects on the viewers for variety of reasons, and many people spend their waking hours in front of the television sets entertaining themselves or learning something. Priya et al (2010) analysed the effect of television advertisements on children's buying behaviour, the result revealed that demand for the products were heavily influenced by the attitude of children toward that product's TV advertisements. TV advertisement could play a pivotal role in reminding, persuading and convincing the consumer to opt for the offering shown in the commercial (Belch and Belch, 2013; Shah and D'Souza 2009), and hence for the tourism sector, irrespective of developed and developing country TV advertisements for the tourism sector could help in promoting the country in a broader perspective.

Many research scholars have used experimental design to understand how viewers react to television advertisements. In an experimental design, generally one or more variable is changed in order to measure or observe the effect or changes it has on the response variables or factors (Quinn et al 2009). The statistical design of experiment is a process to carry out experiments so as to obtain the data which could be analysed to attain valid conclusions. Experimental designs methodologies have been used for years in many fields such as marketing, agriculture, national security, defense, forestry, psychology, process manufacturing and pharmaceutical clinical trials (Almquist and Wyner, 2001). The science of experimental design lets researcher project the impact of various stimuli (such as TV advertisements) by testing just a few of them, at the same time, it uses mathematical formulas which enables the marketers to model hundreds of thousands of stimuli accurately (Almquist and Wyner, 2001). Experimental designs are preferred for the conjoint analysis as well as for the discrete-choice studies (Carmone and Green 1981; Elrod, Louviere, and Davey 1992; Green and Wind 1975; Huber et al. 1993; Lazari and Anderson 1994). Experimental design has now also received a recognition as a new marketing science (Almquist and Wyner, 2001). Hinkelmann and Kempthorne (2012) mentioned the importance of experimental design by quoting that in today's world, any scientific or industrial empirical research could be carried out quite successfully by using the principles of experimental design and statistical analysis.

RESEARCH OBJECTIVE

The objective is to assess the relative importance of colour, sound and visual clarity for BRICS tourism TV commercials.

RESEARCH METHODOLOGY

A convenient sample of 25 (a mix of administration staff, teachers and students) was selected for the experiment, 21 of them had travelled abroad and had actively shown interest in the tourism television commercials.

Three tourism TV Commercials for each BRICS nations were collected and modified in three versions, namely black and white, mute and blurred visual. A web tool (see Appendix) was designed to float the TVCs and to allow the viewers to select commercials as per their choice in the limit of 12,000 points allotted to each viewer. A viewer could select a feature-mute (black and white, mute or blurred) or full featured TVC by spending 500 or 1000 points respectively. At the same time, the viewer could view as many TVCs as desired, even with repetitions. Once the total of 12,000 points are exhausted to watch desired TVCs, the web tool would automatically stop the experiment. Total TVC views were counted to be 370 for which the distribution is shown below in figure 1.

Figure 1: Distribution of TVC views, country wise

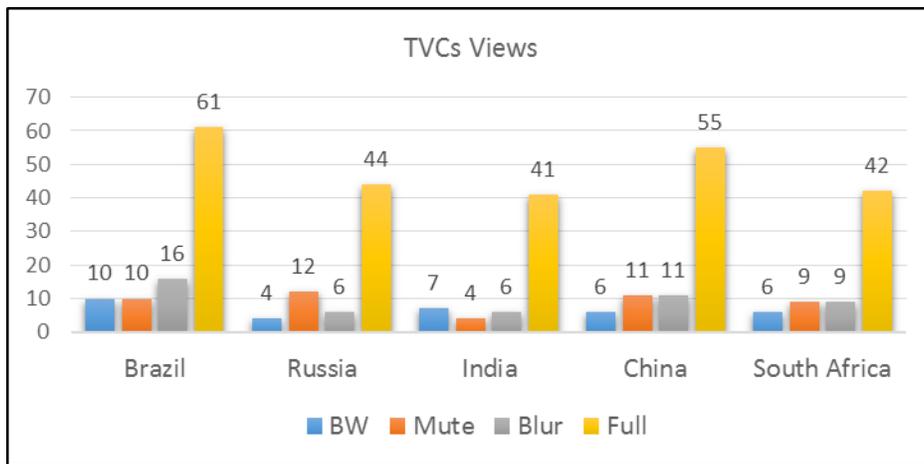


Table 3: The TV Commercials' time duration shown to the participants.

Country	Time Duration		
	TVC 1	TVC 2	TVC 3
Brazil	30 Sec	30 Sec	2 Min 23 Sec
Russia	41 Sec	1 Min 25 Sec	1 Min 26 Sec
India	2 Min 30 Sec	3 Min 04 Sec	2 Min 51 Sec
China	30 Sec	1 Min 04 Sec	32 Sec
South Africa	1 Min 02 Sec	1 Min	1 Min 02 Sec

ANALYSIS

We carried out multiple regression analysis to derive models for BRICS countries, for the composition of Tourism TV Commercials.

Table 4 to 8, present results of regression analysis.

Table 4: Brazil

	Coefficients	Standard Error	t Stat	P-value
Intercept	1972.283421	461.9026931	4.269911067	0.000340751
Brazil - Black & White	0.321111024	1.026516437	0.312816251	0.757505636
Brazil – Mute	1.356459989	0.710504863	1.909149479	0.07000195
Brazil – Blur	2.663132426	0.765226911	3.480186579	0.002234307

For Brazil, 'Black and White' commercials, could not be a significant part of the model at 95% confidence level, since its p-value is above 0.05.

Table 5: Russia

	Coefficients	Standard Error	t Stat	P-value
Intercept	847.0852418	183.4132119	4.618452689	0.000148226
Russia - Black & White	2.240414918	0.636728478	3.518634703	0.002040628
Russia - Mute	0.89041428	0.177874576	5.005854691	5.91148E-05
Russia - Blur	0.86566212	0.347548769	2.490764453	0.021196736

For Russia, all three features are significant for the regression model.

Table 6: India

	Coefficients	Standard Error	t Stat	P-value
Intercept	1540.74367	254.183282	6.06154606	5.143E-06
India - Black & White	1.91060127	0.773497476	2.4700808	0.0221626
India - Mute	-0.1906646	1.079228729	-0.1766674	0.8614624
India - Blur	-0.274789	1.088483318	-0.2524513	0.8031468

Surprisingly, for India, audio and visual noise do play a significant role in the model derived.

Table 7: China

	Coefficients	Standard Error	t Stat	P-value
Intercept	2444.860422	400.3562621	6.106712079	4.64489E-06
China - Black & White	0.052901441	1.600316668	0.033056858	0.973941432
China - Mute	1.364938553	0.841529834	1.621972862	0.119727714
China - Blur	0.038658745	0.784293562	0.049291167	0.961153067

We could not derive a statistically sound regression model for China TV Commercials, since, all three regression coefficients are insignificant.

Table 8: South Africa

	Coefficients	Standard Error	t Stat	P-value
Intercept	1635.294118	272.5365923	6.000273592	5.90683E-06
SA - Black & White	0.207843137	0.80690889	0.257579437	0.79923873
SA - Mute	2.098039216	0.92378897	2.271123909	0.03377979
SA - Blur	0.955555556	0.952611654	1.003090348	0.327236304

South Africa commercials show 'mute' feature as a significant player in regression model.

INTERPRETATION AND CONCLUSION

Total points spent on commercials of a country are treated as a dependent variable, and 'Black and White', 'Mute', and 'Blur' features are considered as independent variables.

It is important to understand the results carefully, as the features are placed with reverse effect in the experiment. For example, black and white, if found statistically significant, shows that people have watched more commercials of that country without colour. And therefore, a viable conclusion is that colours and colour themes have no significant effect on the overall impact of the commercial on the viewer's mind. Same applies to 'Mute' (absence of Audio) and 'Blur' (absence of Visual Clarity) variables. To interpret the results we can draw the following points:

1. For Brazil, 'Black and White' is the feature which is found insignificant in the model. Which shows colour is given high preference, compared to audio and visual clarity.
2. For Russia, all three components are found significant, which shows viewers preferred all three features equally, and they did not prefer to watch significantly higher number of full-featured commercials, compared to feature-mute commercials.
3. For India, Audio and Visual Clarity (may be because viewers can emotionally connect more with faces, music and audio messages in these commercials) are preferred over colours and backgrounds.
4. For China, all three features are found insignificant, which shows that viewers have preferred full-featured commercials more over feature-mute commercials.
5. For South Africa, 'Mute' is a significant feature, and it suggests that audio is less dominating variable for tourism commercials compared to colours and clarity.

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APPENDIX: Images of Advertisements Platform (Image 2 to Image 4)

Image 2

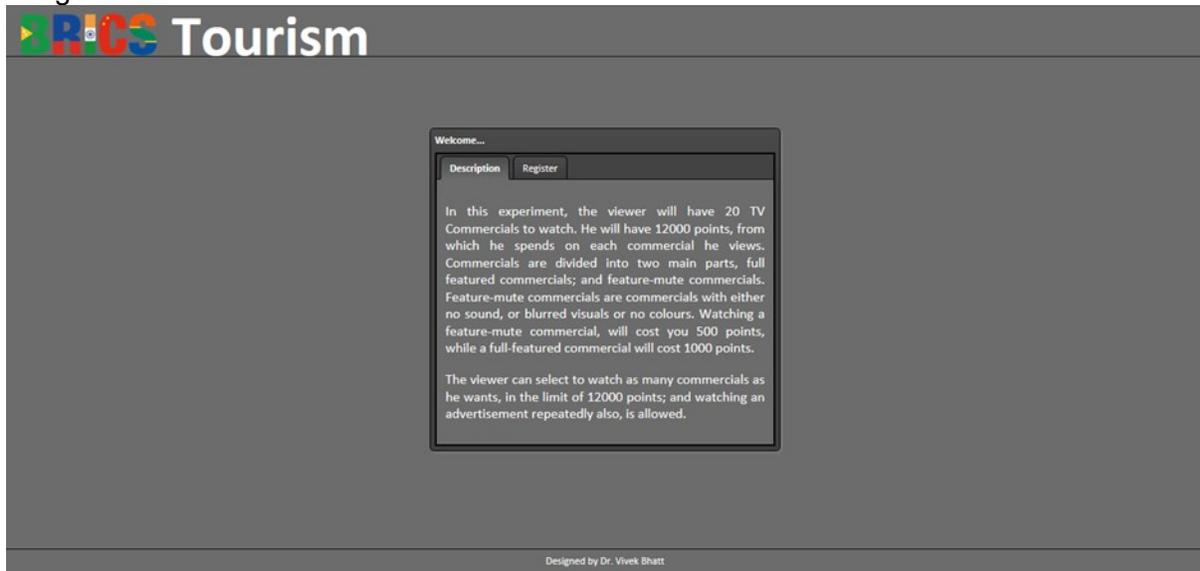


Image 3

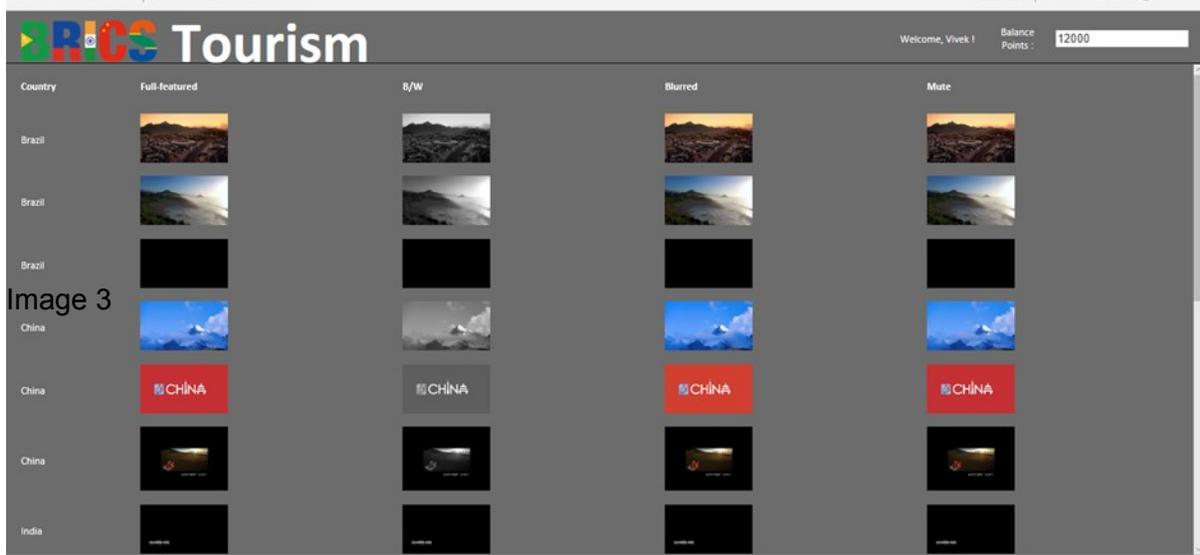


Image 4