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Beyond Click-Counts Media Exposure Measurements

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The paper will focus on a new way of measuring and thinking about media exposure, not only in terms of estimated incidences (number of consumers), but also their media "consumption" measured in time spent across the major five media, namely TV, radio, magazines, newspapers and Internet. The paper will show that media planning can be guided by research data based on the time spent on different media. The more time spent on a particular media, the greater the opportunity for communication to establish a relationship with a brand. Conversely, the shorter the time, the more impactful the communication needs to be!

This pilot study was funded by MSSA (Marketing Surveys and Statistical Analysis).

Background and literature

This research started 2 years ago in an attempt to bridge the gap of analyzing media reach across different media types. In my efforts to think about ways to measure media usage, I was confronted with traditional ways and some new approaches. However, all methods or scales used incidences of consumers, for example SAARF (South African Advertising Research Foundation) measurements use % of population figures for print (or one may use circulation figures). For radio and TV media, Audience Ratings (AR's) are available.

What I was thinking about and looking for was **how a single consumer uses his/her time on the different media** so that one can say that an individual (our group) should have a market share of media usage. For example, I spend say 30% of my media exposure time on radio, 30% on TV and 20% on newspapers, 15% on magazines and 5% on the Internet. My neighbour on the other hand surely has a different % distribution of media time exposure.

I researched some literature that I had in my possession to see how media planners use available data. I found that Koekemoer (1987) discussed four dimensions of media exposure, namely:

- Reach (how many people exposed)
- Frequency (high or low number of flights)
- Impact (creativity and space used)
- Continuity (time/length of campaign)

So it is really the "**reach**" dimension that my research should focus on. I also had a look at the Gross Rating Points (GRP's) and found that the GRP's "delivered by one medium may not be considered equivalent to another" (Koekemoer, p160. 1987) and that he recommended that the GRP's be weighted by some process of judgement, as is shown in Table 1.

TV	1.00	54.6%
Magazines	0.50	27.3%
Radio	0.33	18.1%
Total	1.83	100%

Further literature exploration motivated me to carry on. Martins et al (1996) in the well-known marketing research book "Marketing Research. A South African Approach" defined **media synergy research** as the study of **multimedia effects** and states that "communication becomes more effective when more than one medium is employed in support of a particular campaign" (Martins et al, p588.1996). Studies in this regard were Ad exposé in SA, Business Research and Communication Research in the UK, People Reader and Simulated Networks in the USA and Media Mix and Advertising Effectiveness in Germany (compared a single media type with two media types).

A recent publication in South Africa by Du Plessis (2003), mentioned similar media exposure dimensions, namely reach, frequency and impact. However, he mentioned coverage (instead of continuity) to be used in media planning, but clearly states that "the final mix will be dependent on the judgment, skills, experience, know-how and even intuition of the media planner".

Belch & Belch (2001) claim that by **combining media, marketers can increase coverage, reach and frequency levels while improving the likelihood of achieving overall communication and marketing goals**. A balance of increasing reach at the expense of frequency or increase of frequency of exposure to a smaller audience is a problem media planners need to judge in most of their campaigns. A similar problem will be discussed when the new scale is being used.

End of last year SAARF launched a new product called Media Groups Measurement (MGM). Clive Corder, Chairman of SAARF in his summary document states, "the MGM is designed to give insight into the build-up of

media duplication". The MGM segments the market in 8 groups.

Group 8 is the group with the highest exposure to radio and TV, increased exposure to print, further growth in outdoor and exposure to cinema and Internet the past 7 days. Group 1 on the other hand has some exposure to TV, limited exposure to media with exception of radio, exposure to outdoor advertising at stores on billboards and to a lesser extent on taxis or mini buses.

This work is new and fresh and should be applauded. I was surprised at the similarities to my work. However, the analysis of the data was still based on counts of respondents falling in a particular category (Principle Component Analysis). The advantage is that it links up with the present data of SAARF. You will notice that there are signs of ordinal scales being used, for example in Group 8 respondents "with the highest exposure to TV and radio" and "increased exposure to print", etc.

During 2001, I read an article in ADvantage by Virginia Hollis. She referred to an US-based company called "Statistical Research" that developed a new measurement tool called MultiMedia Mentor[®]. The research began with a pilot study of 1000 interviews in November 1999. They claim that it is a single source measurement of time spent with five key media, TV, radio, Internet, newspapers and magazines. **I have found what I wanted!**

After discussing the concept with a few media specialists and sensing that they were not keen on the idea, **I knew I should go for it!**

Aims, hypothesis and approaches

Aims

The aims of this report are to introduce the reader to new ways of thinking about media mix in general and to guide the understanding of the statistics generated from the new measurement scale, namely time (in minutes) consumed on different media.

The fact that the data we collected is **continuous and not categorical** (units only), gives us as researchers more flexibility in our analysis and will surely contribute towards gaining insight about the **phenomenon of consumers being exposed to more or less of advertising**.

The paper is not about replacing existing data, but rather to utilize a new scale and create opportunities to optimize media mix planning. It is also **to stimulate the debate about how consumers that are exposed less to different media, should be communicated with**. Should the approach (perhaps the intensity of the message) be different when consumers are exposed more to the media?

Hypothesis

The summated measurement scale based on time spent across media is a reliable and a valid scale.

Approaches

The approach in this study is of an exploratory nature and based on confirmatory statistical test to either accept or reject the formulated hypothesis. Most of the distributions calculated, is of a non-normal nature and therefore non-parametric statistical tests were used in making conclusions about the hypothesis .In some analyses the

distributions were transformed to normal distributions to do parametric statistical tests. All statistical analysis was done using SPSS software package.

Respondents that claimed that they were not exposed to any media (that is 0 minutes) were not included in the analysis. In other words, the average and median measured minutes were calculated based on the respondents that said they were exposed to at least one of the five media.

Collection of the data

Sample

The data used in this research was collected, using personal interviews, by MSSA field survey staff as part of a national consumer survey. Rural and urban representative respondents from households were interviewed. The sample size was 2 000 and a disproportional urban/rural were used, namely 1 000 urban and 1 000 rural. **This ratio was weighted to provide an adjusted sample size of 1 964** (urban = 853, rural = 1 111). The number of males and females in the sample is shown in Table 2.

	n	%
Males	955	48.6%
Females	1009	51.4%
Total	1964	100%

Province	n	%
Gauteng	413	21%
North West	154	8%
Limpopo	197	10%
Mpumalanga	135	7%
Western Cape	198	10%
Free State	145	7%
Northern Cape	38	2%
Eastern Cape	277	14%
Kwazulu/Natal	407	21%
Total	1 964	100%

From the above it is clear that the sample is well represented and suitable for analyzing the media exposure data.

Future use

The database that is accessible also includes other demographic variables, namely:

- Household income
- Life stage
- LSM (in three groups, namely LSM 1-3, 4-5 and 6-8)
- Home language
- Race
- Age

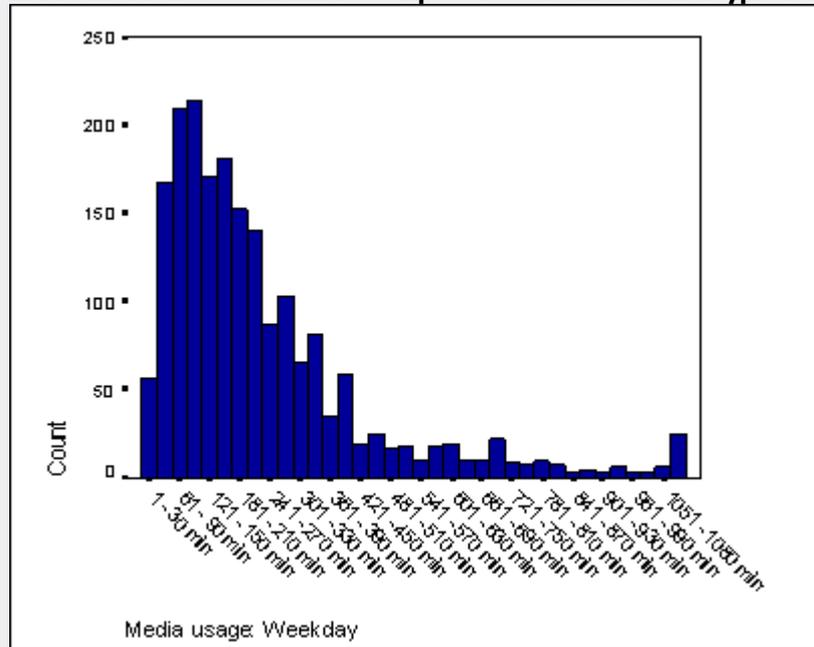
Because of the dynamic nature of the media exposure time in minutes, per consumer, many combinations for different target markets can be calculated.

Exploring the total time spent with media

Investigating the distributions and summary statistics of a typical day/week

To investigate the behaviour of the variable "Total media exposure or usage", one needs to look at the **distribution or histogram** of the frequencies of the minutes used as is shown in Figure 1. **The y-axis represents the frequency** or number of respondents by minute categories in 30 min intervals (x-axis).

Figure 1: Distribution of total minutes exposed to the media on a typical weekday



Media usage: Weekday									
Mean	Median	Mode	Min	Max	Std. Dev.	Variance	Skewness	Kurtosis	Valid n
249.77	180	180	10	2280	235.82	55611.52	3.036	14.514	1964

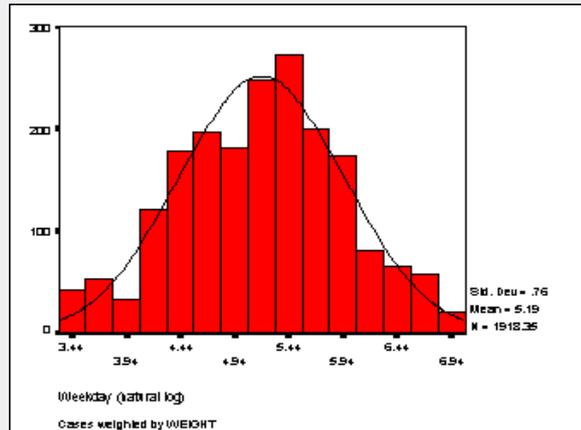
The total or **sum of all minutes** of the different media types that a consumer is being exposed to during a typical weekday, namely TV, radio, magazine, newspaper and Internet **make up the new variable**. The scale being used is a **ratio scale** (Hair et al, 1998) and is measured in minutes. Each media will have its own distribution also measured in minutes. It should be noted that not all respondents were exposed to all five media. Similar distributions were constructed for a typical Saturday and Sunday.

From the graph and statistics it is clear that the distribution is not a normal distribution. It is also a peaked distribution, which is skewed to the right (positively skewed). There are also some outliers, which need to be looked at.

Reliability of the scale

Figure 2 shows the distribution after a natural log transformation was applied to the data. Outliers were excluded. The data set was randomly split in two samples and a **t-test** was applied to determine if the average scores of the two distributions were equal.

Figure 2: Simulated distribution of the summated scale after a natural log transformation.

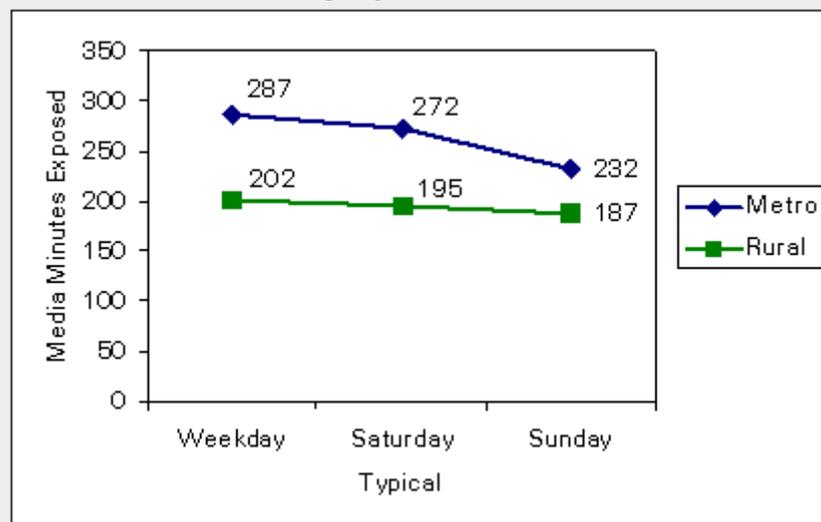


From the test results (shown in the Appendix) the **hypothesis of equal means** cannot be rejected. A non-parametric test on the raw data also confirmed the fact that the two means are equal. **Therefore the scale is a reliable scale to measure the cumulative scores of time consumed on five media types, namely TV, radio, Internet, magazines and newspapers.**

Some selected results

Figure 3 shows the mean total minutes of metro and rural consumers (16 year+). The graph clearly shows **that metro consumers are exposed more to the 5 media than rural consumers.**

Figure 3: The mean total minutes being exposed to the media for metro and rural consumers

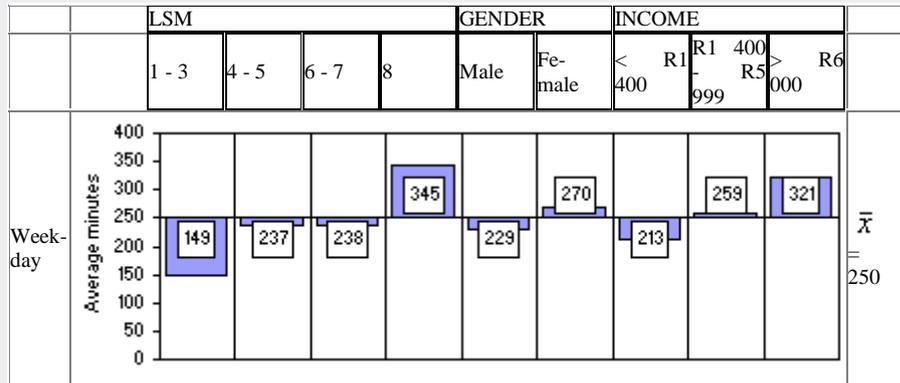


Average minutes spent on a typical weekday by LSM, gender and income is shown in Figure 4. Interesting to note

that

- Lower LSM's on average are less exposed to the 5 media than the higher LSM's, as is the case with income.
- Females are more exposed to the 5 media than males!

Figure 4: Average minutes usage by LSM, gender and income



Issues to debate

An issue we need to think about now is, if the poor use less or are exposed less to the media, what does it mean in terms of communicating a message say about HIV/AIDS to them?

Do we have to work more on the impact of the messages? What about shorter, stronger messages with not too much information?

On the other hand, if consumers are exposed more to the media, is there a greater opportunity to establish a relationship with a brand? Should it be more generic when respondents are less exposed to media?

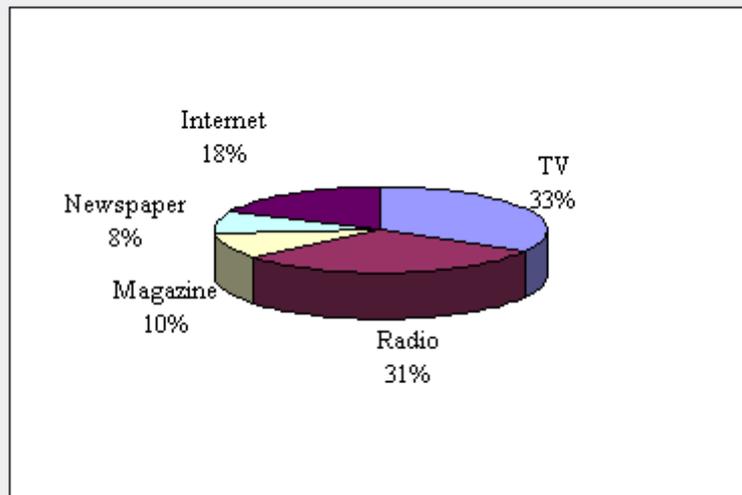
From the research, we realize that a consumer should not be counted only as an incidence or number, but one needs to look at the time being exposed to the media as an additional factor that can influence your media mix planning.

Market share of media exposure in minutes

Media exposure market share of consumers in South Africa (16 year+)

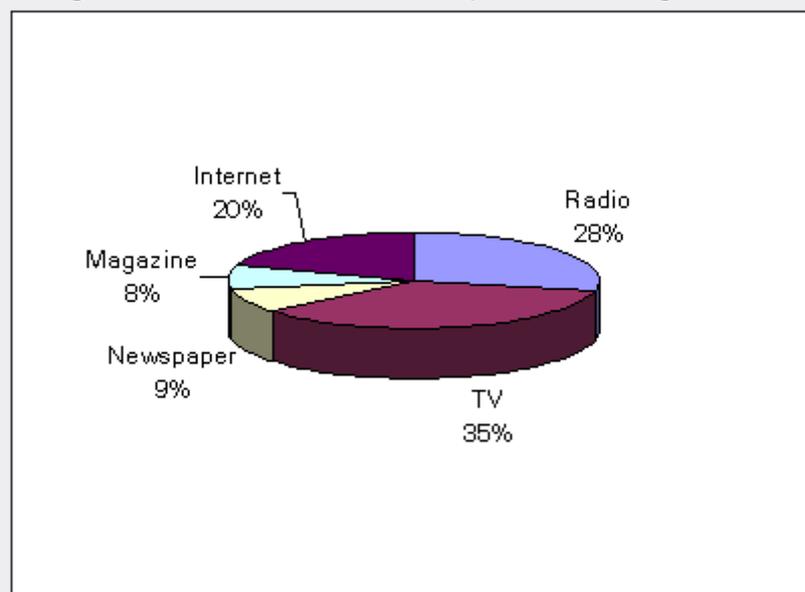
Figure 5 shows the % market share of time being exposed to TV, radio, magazines, newspaper and Internet for a typical weekday.

Figure 5: % market share for a weekday



Market share of a male target market

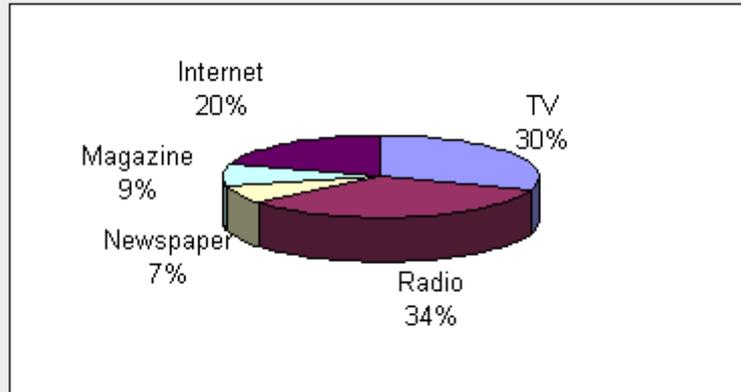
Figure 6: % market share of males, LSM 6-8 and ages 35-49



Market share of a student target market

The same summated scale measuring media exposure was applied to a study amongst 1 000 full time students at South African universities and Technikons. The outcome of the % media exposure is shown in Figure 7.

Figure 7: % market share of full time final year students



The graphs confirm that the time being spent on media could provide new opportunities and insight for media planners towards working to an optimum media mix to target a given market.

Conclusion

Media exposure across different types of media is a neglected area of research. The research therefore contributes to the knowledge pool in this regard, especially the focus on developing a summated measurement scale based on the time exposure of consumers. This paper showed that a reliable scale was developed and applied to media mix exposure.

Future expansion

The pilot research was an attempt to investigate the applicability of the scale. Also to identify new opportunities for further research across the five media.

Surely, a follow-up study is needed to confirm patterns and also to expand and apply the measuring scale to other sub-categories. For example, linking the newspapers being read or the TV-channels to the time exposed.

Further research and analysis can now be undertaken with this new measuring scale. The scatter plots shown in Figure 8 and 9 for example also need further analysis and exploration.

Figure 8: Scatter plot of Internet media exposure and TV exposure

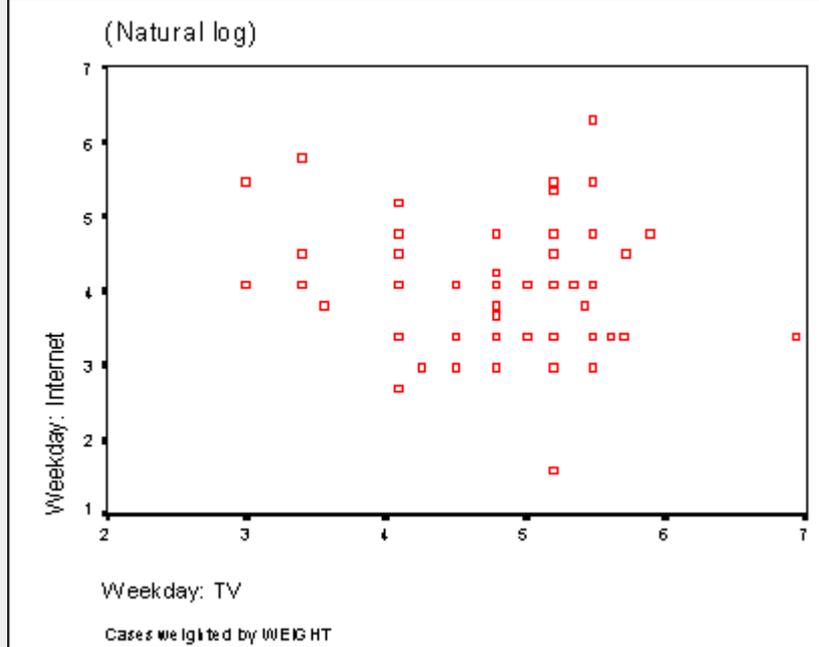
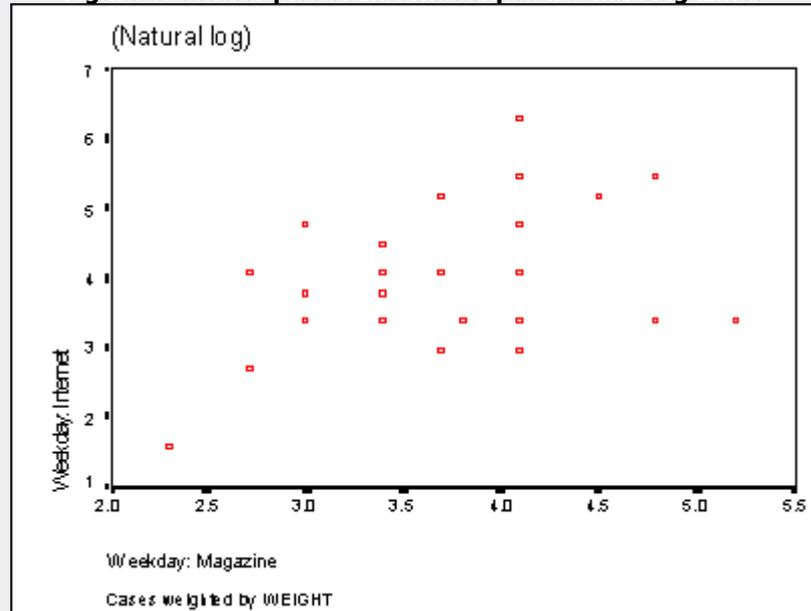


Figure 9: Scatter plot of Internet exposure and Magazines



Some limitations

During our exploratory data analysis we tried to use multivariate statistical analysis on the summated scale with limited success. This was due to the fact that the number of respondents that used all media was small (21). The number of respondents that used 4 media on a weekday increased to 218 and those that used 3 media to 573 and for 2 media 1283 (sample size = 1964).

For example the correlation matrix for 3 media showed some correlation between the different media exposure

time.

Correlation Matrix

	Radio	TV	Newsp
Radio	1.0000		
TV	.3961	1.0000	
Newsp	.1207	.1193	1.0000

n of Cases = 573.0

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www.statisticalresearch.com/index.html

Appendix: Results of t-test

	Approximately 50 % of cases (SAMPLE)	N	Mean	Std. Deviation	Std. Error Mean
Weekday	0	967	5.1644	.7704	2.48E-02
(natural log)	1	951	5.2108	.7523	2.44E-02

Independent Samples Test

		Weekday (natural log)	
		Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances	F	1.188	
	Sig.	.276	
t-test for Equality of Means	t	-1.332	-1.332
	df	1916	1916.23
	Sig. (2-tailed)	.183	.183
	Mean Difference	-5.E-02	-5.E-02
	Std. Error Difference	3.5E-02	3.5E-02
	95% Confidence Interval of the Mean		
	Lower	-.1145	-.1145
	Upper	2.2E-02	2.2E-02