International Master's Program in International Communication Studies, NCCU

The role of social media in communicating science

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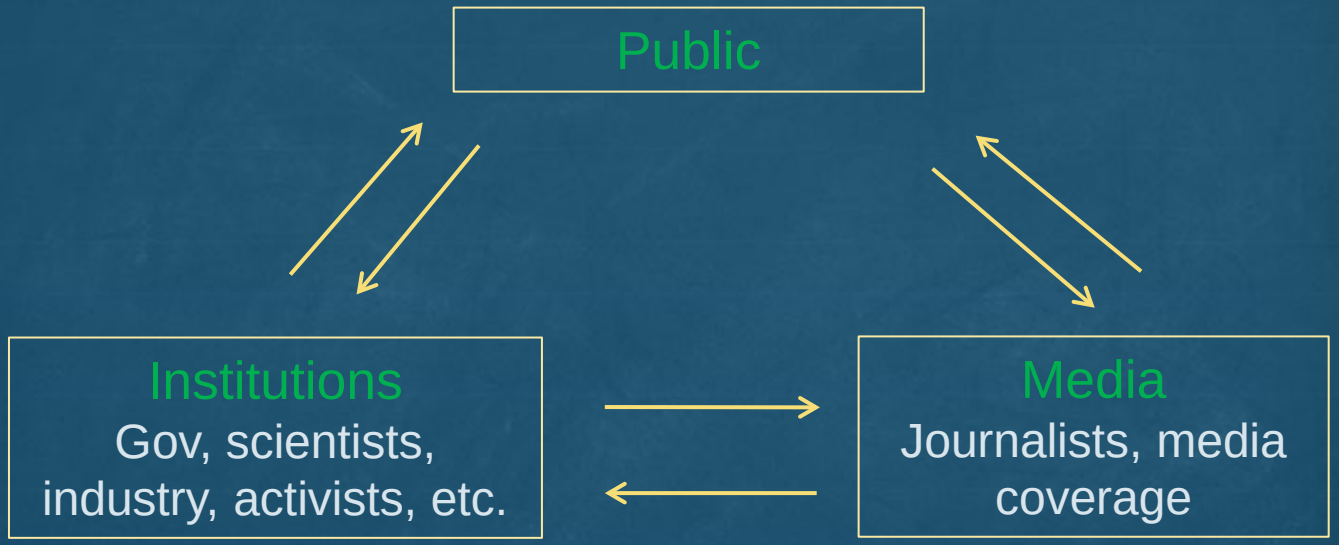
Research agenda



- Many issues we face today are related to science, such as nuclear power, genetically modified foods, nanotechnology, etc.

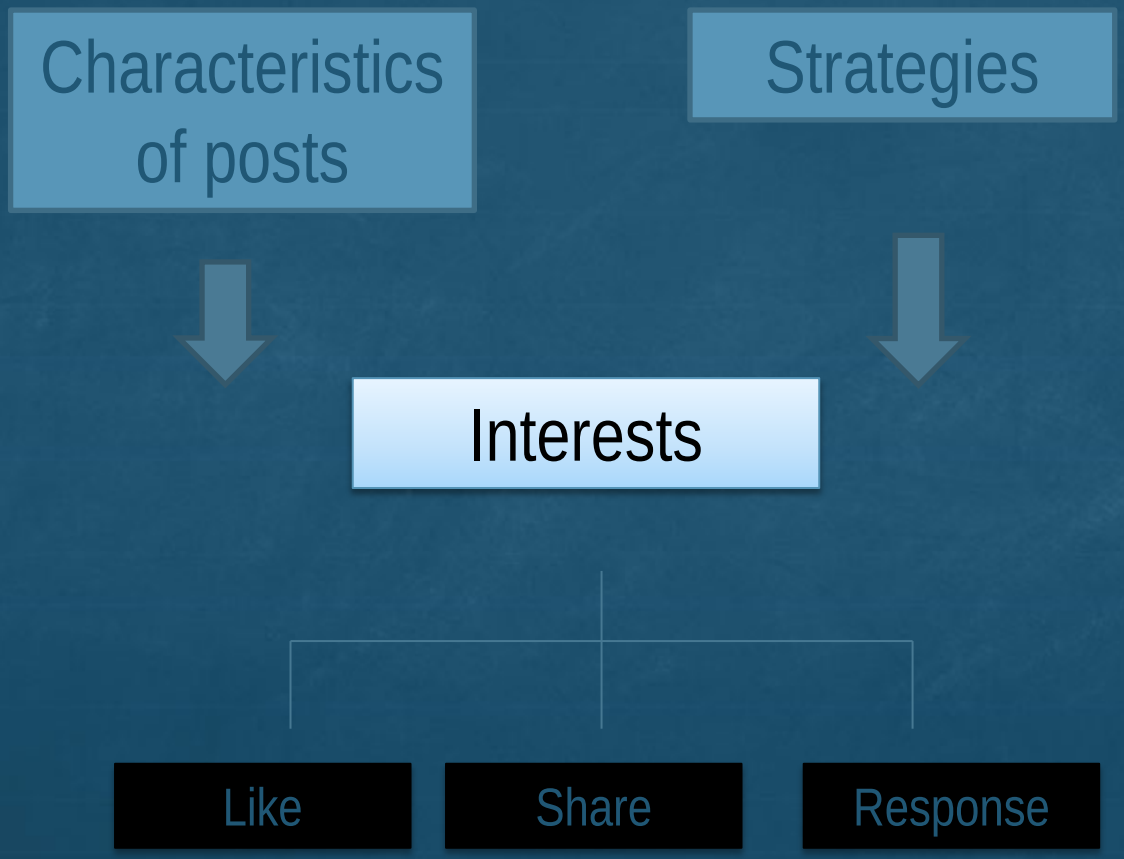
Funded projects

Year	Project	
2010-2011	Technology, media, and society: The influence of media coverage and cultural values on public acceptance of emerging technologies.	99-2511-S-004-004-
2011-2012	Public Perception of Scientific Issues in Taiwan	100-2410-H-004-146-SSS
2012-2013	Constructing a new model for science communication: The role and function of new media	101-2511-S-004-003-
2013-2015	Social media and public attitudes towards science	102-2511-S-004-005-MY2

Models of science communication

- Deficit model
- A more dialogical, interactive, and deliberative model

Study 1：science social media content



Pansci

PanSci 科學新聞網

Jen 首頁

建立粉絲專

最新
2014年
2013年
2012年
2011年
開始

PanSci 科學新聞網
媒體/新聞/出版

讚 ▾ | ✓ 追蹤中 | 發訊息 | •••

動態時報 | 關於 | 相片 | 讓收件匣也充滿科學 | 更多 ▾

用戶 >

185,407 個讚

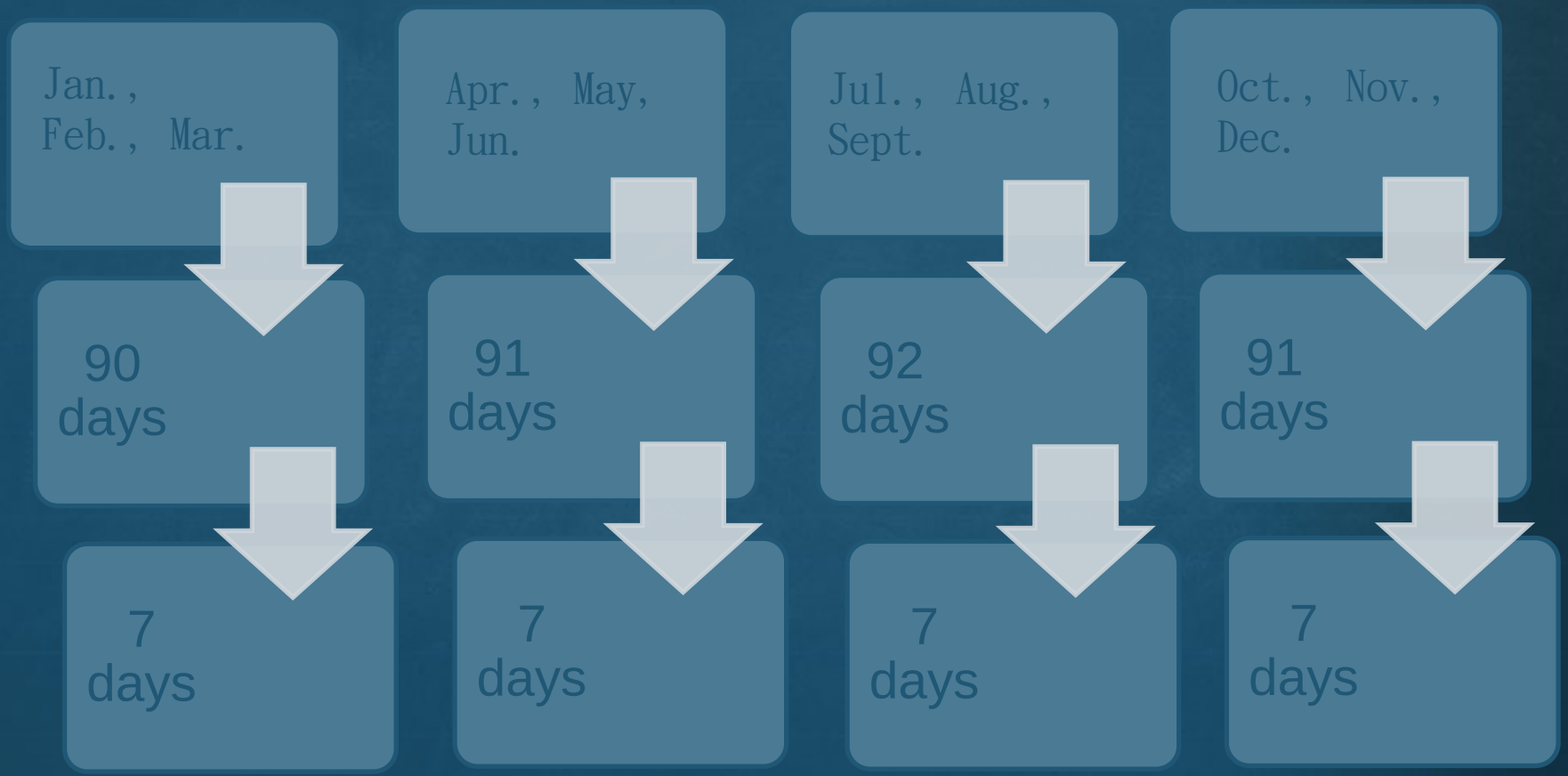
貼文 | 相片/影片

在這個專頁上寫點什麼……

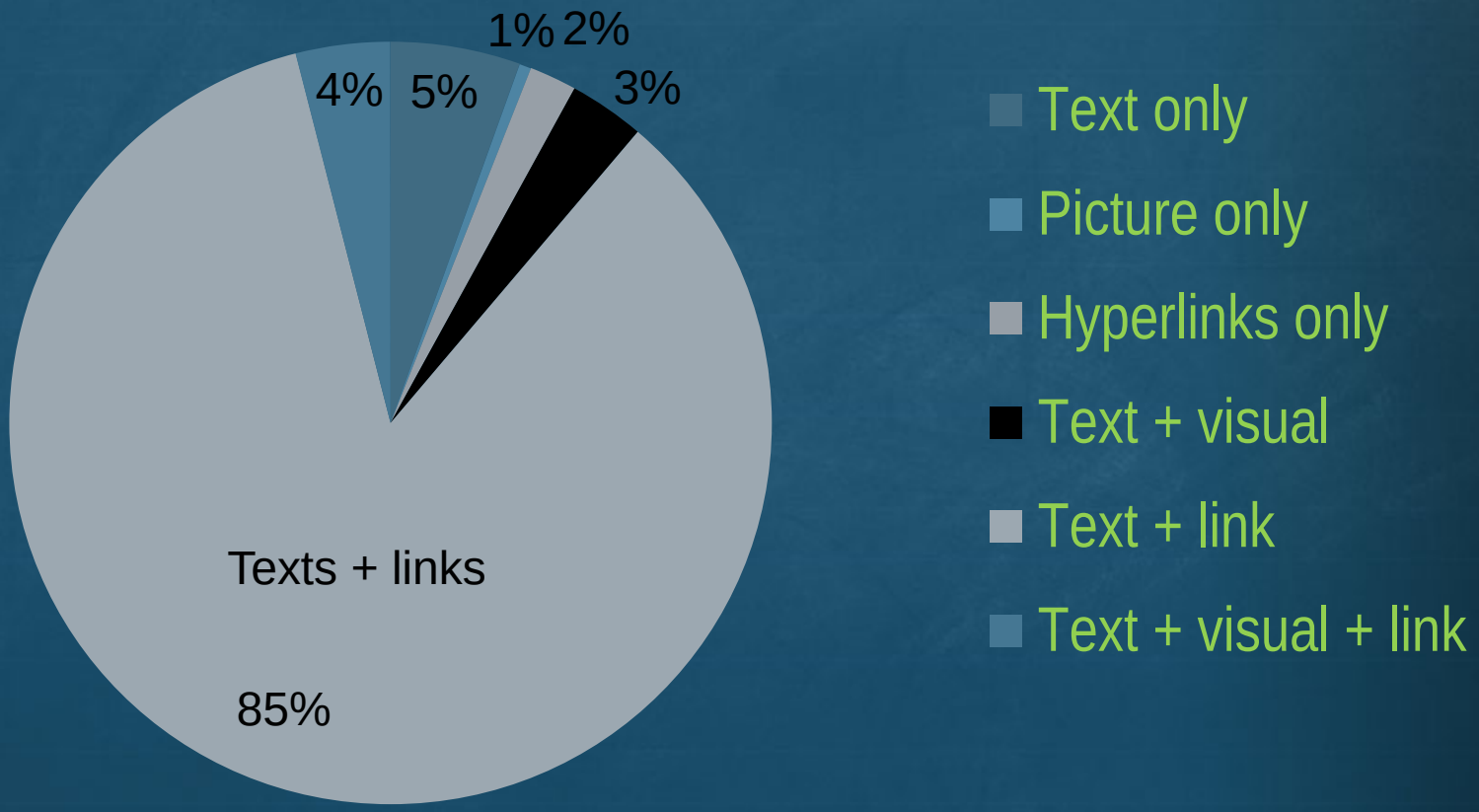
Methods

- Content analysis
- 2011.1 ～2012.12
- N = 402

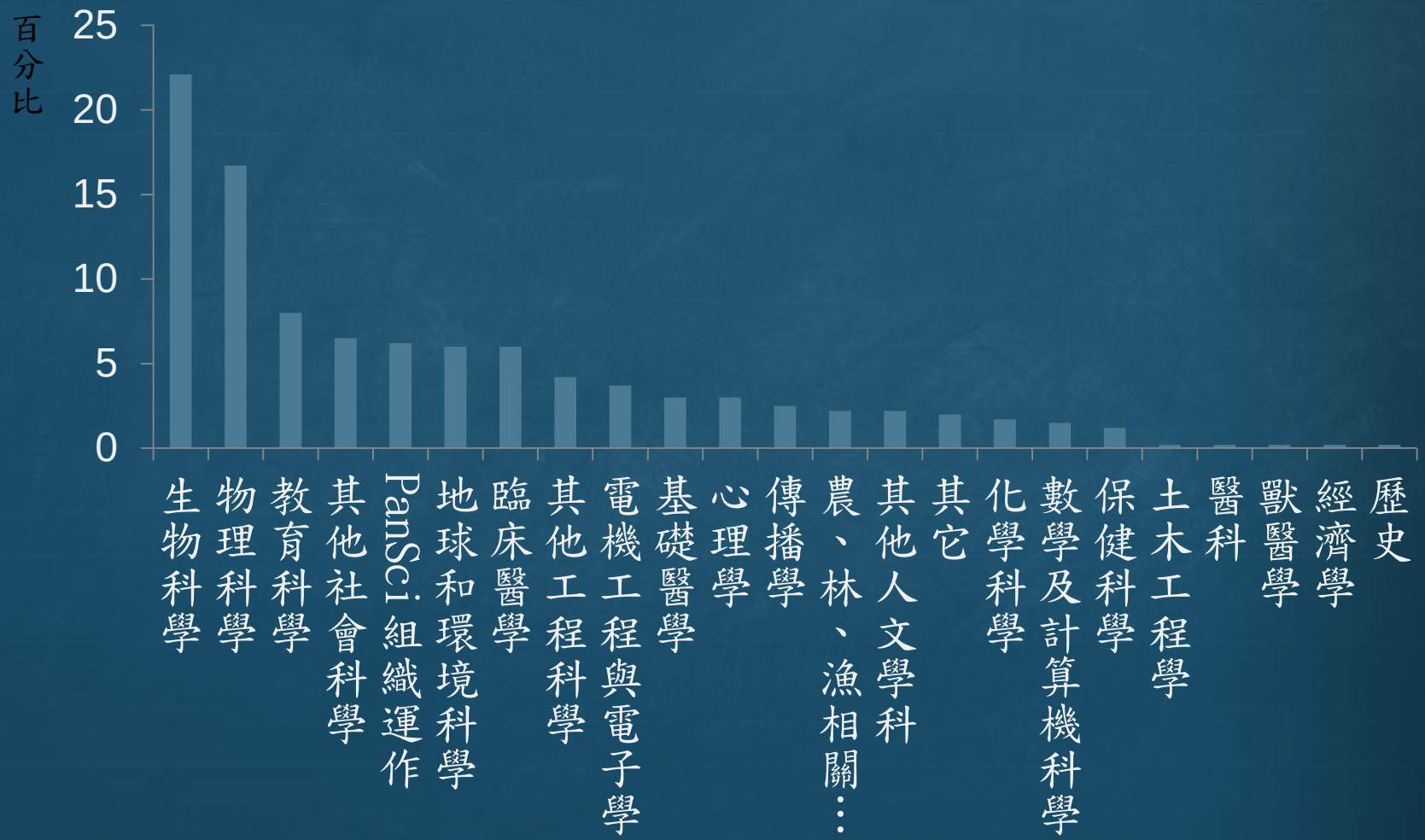
Sampling


Jan., Feb., Mar.
Apr., May, Jun.
Jul., Aug., Sept.
Oct., Nov., Dec.
90 days
91 days
92 days
91 days
7 days
7 days
7 days
7 days

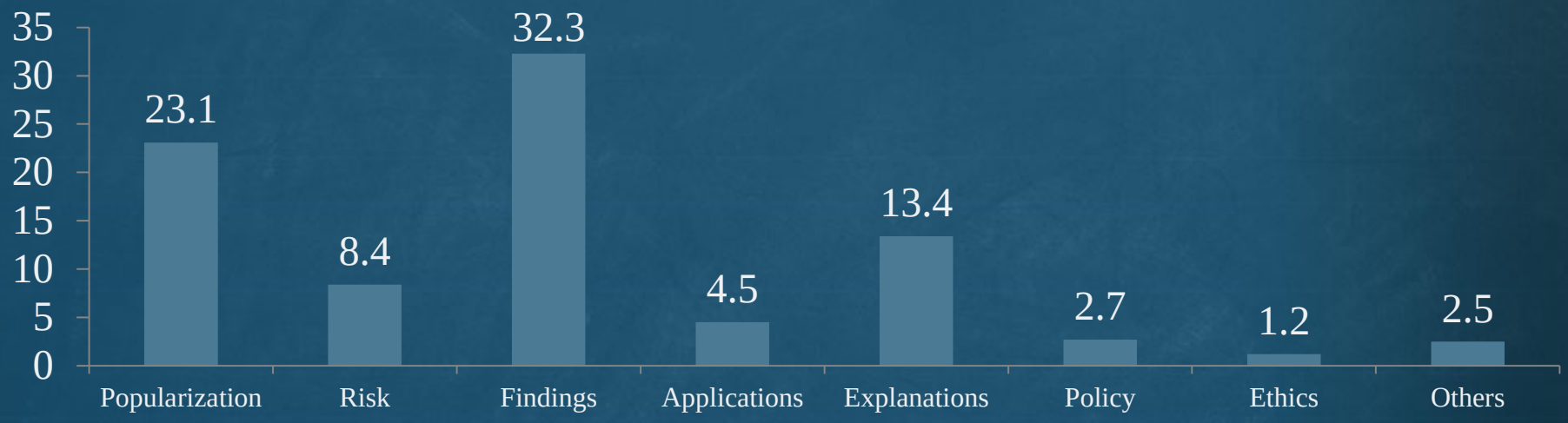
Format


1%
2%
4%
5%
3%
Texts + links
85%
Text only
Picture only
Hyperlinks only
Text + visual
Text + link
Text + visual + link

Topics


百分比
25
20
15
10
5
0
生物科學
物理科學
教育科學
其他社會科學
PanSci.組織運作
地球和環境科學
臨床醫學
其他工程科學
電機工程與電子學
基礎醫學
心理學
傳播學
農、林、漁相關…
其他人文學科
其它
化學科學
數學及計算機科學
保健科學
土木工程學
醫科
獸醫學
經濟學
歷史

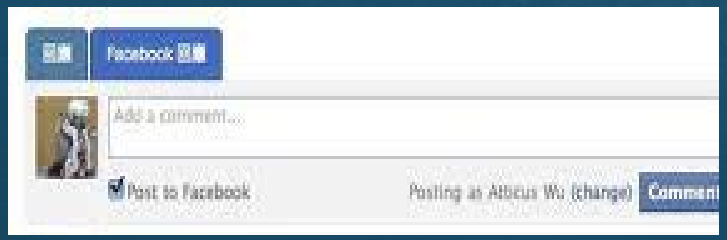
Themes


35
30
25
20
15
10
5
0
23.1
8.4
32.3
4.5
13.4
2.7
1.2
2.5
Popularization
Risk
Findings
Applications
Explanations
Policy
Ethics
Others

Users' interests

Mean = 68.30
Range = 0 ~ 2796

Mean = 30.74
Range = 0 ~ 2981



Mean = 5.08
Range = 0 ~ 129

Formats and users' interests(1)

	# of likes					
	Texts	Visuals	Links	T + V	T + L	T+V+L
Mean	25.05	11.5	2.38	684.38	35.76	360.94
SD	36.10	119.72	59.86	46.96	9.17	42.33
F value	47.08					
Sig.	$P < .01$					

Formats and users' interests(2)

	# of sharing					
	Texts	Visuals	Links	T + V	T + L	T+V+L
Mean	4.43	0.00	0.00	662.5	8.28	98.75
SD	67.04	125.42	62.71	51.20	9.73	44.34
F value	32.07					
Sig.	$P < .01$					

Formats and users' interests (3)

	# of responses					
	Texts	Visuals	Links	T + V	T + L	T+V+L
Mean	9.28	1.50	2.13	27.92	4.11	8.19
SD	3.73	6.98	3.49	2.85	0.54	2.47
F value	14.24					
Sig.	$P < .01$					

- Users were attracted more by the formats of the posts than by their content.

Strategies— text structure vs wording

Strategies used	Frequency	Percentage
Structure		37.7
Proximity (time/ location)	103	27.3
Human interests	31	8.2
Prominence (celebrity)	33	8.8
Conflict	2	0.5
Lexicon		41.7
Casual languages	11	2.9
First or second person	54	14.3
Use of slangs	2	0.5
Questions	27	7.2
Internet languages	110	27.3

Structural strategies and users' interests

	Likes		Shares		Responses	
	Yes	No	Yes	No	Yes	No
Mean	111.07	46.98	66.51	12.20	7.56	3.58
F	12.61		5.95		7.72	
Sig.	P < .01		P < .05		P < .01	

The use of structural strategies significantly increased users' interests of the posts. However, we did not observe a similar function for the use of lexicon strategies.

Study 2：Use s of social media and its impact

- What is the users' profile of Pansci?
- Does Pansci attract new users or people who have been interested in science already?
- Does Pansci facilitate a more "public engagement" model of science communication (by mobilizing people to participate more in scientific activities)?

Uses and gratifications

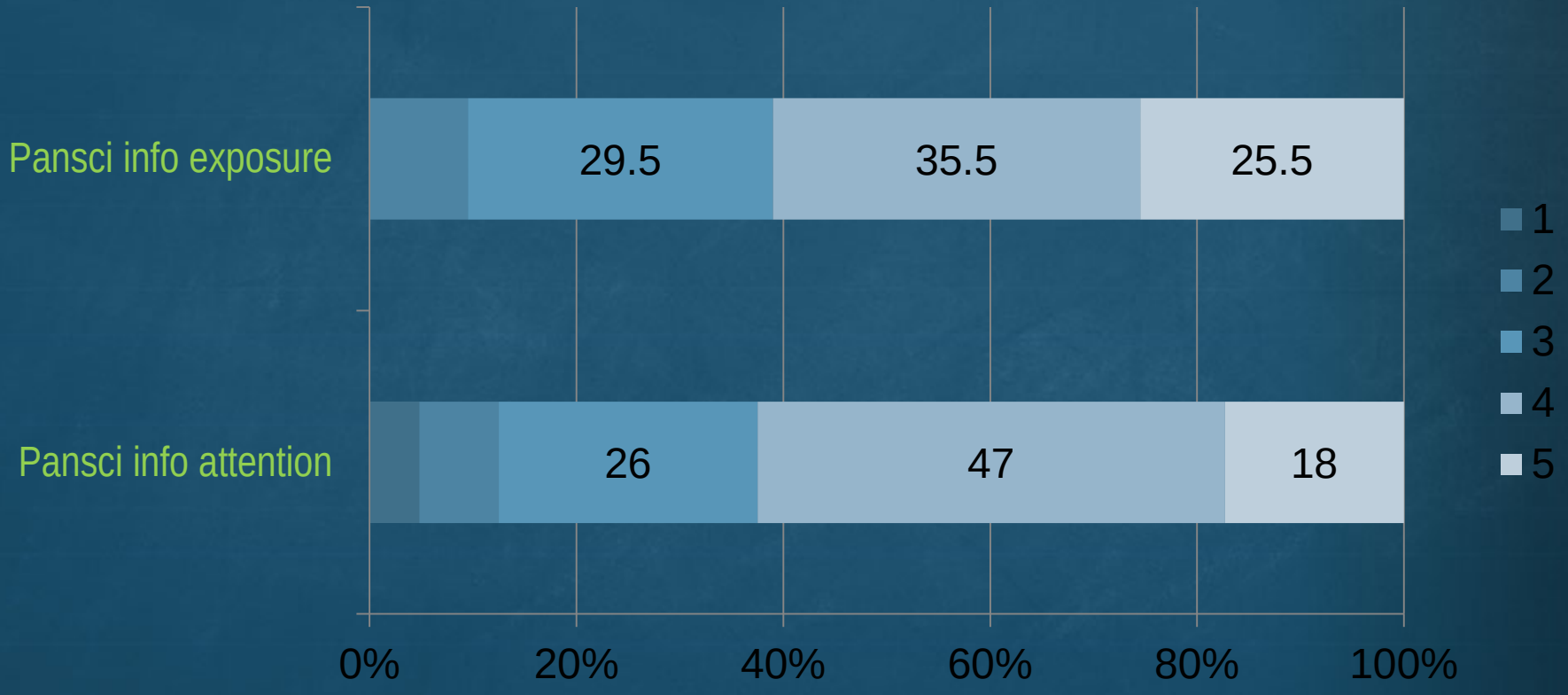
- U&G tries to answer the question of why individuals choose to attend to particular media channels or types of content and what gratifications they expect and gain as a result of these interactions.
- McQuail: Information, personal identify, integration and social interaction, and entertainment.
- Shah et al.:

Internet use			
Overall Internet use	–.06 (–0.85)	–.01 (–0.11)	–.02 (–0.35)
Social recreation	.02 (0.43)	.00 (–0.13)	–.05 (–1.41)
Product consumption	.09 (1.93)†	.00 (0.10)	.01 (0.23)
Financial management	–.04 (–0.94)	.00 (–0.05)	.00 (0.14)
Information exchange	.24 (3.83)***	.08 (1.80)†	.12 (2.36)*
R^2 (%)	14.55	8.20	10.69
N	545	1,204	1,020

Methods

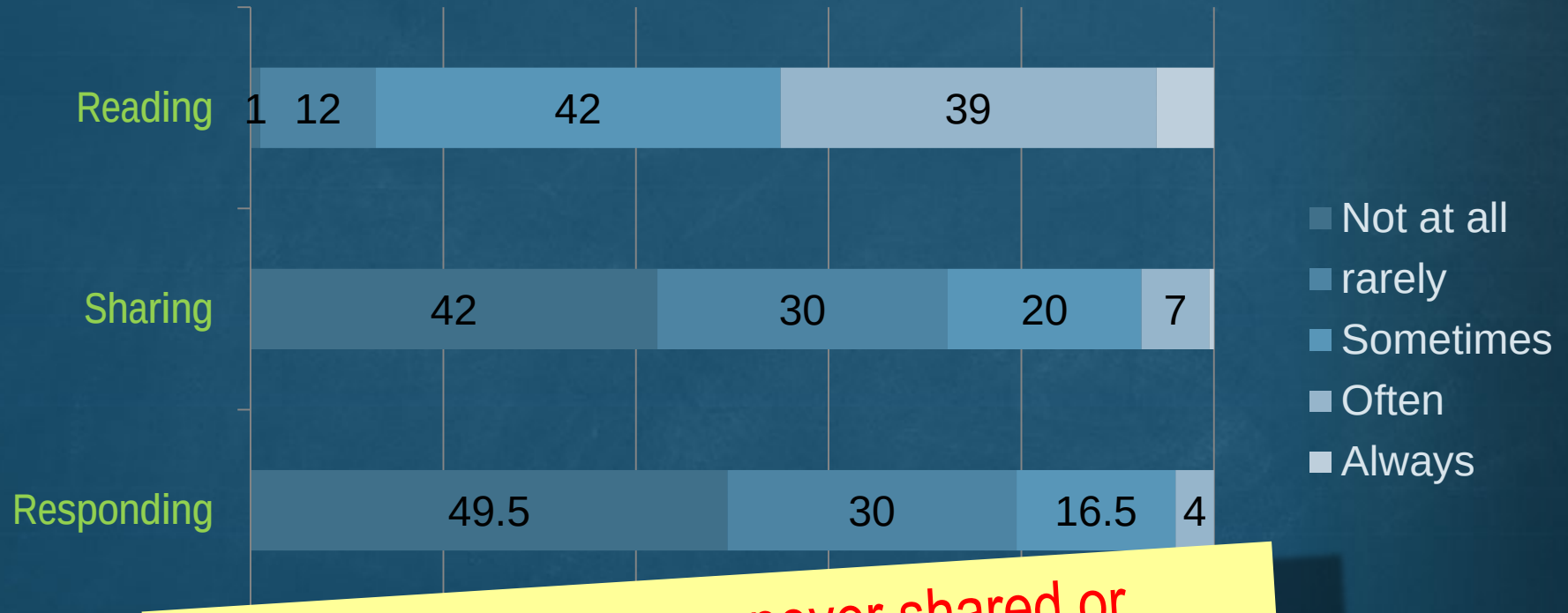
- Using Pansci as a case study
- An online survey of 200 Pansci users
- Areas of study:
  - Uses of social media
  - Motivations of using social media
  - Perception of Pansci Facebook page
  - Perceived efficacy
  - Scientific knowledge
  - Scientific participation

Pansci exposure & attention



A “pansci use” index was created by averaging these two variables, r = 0.67**

What did people do?

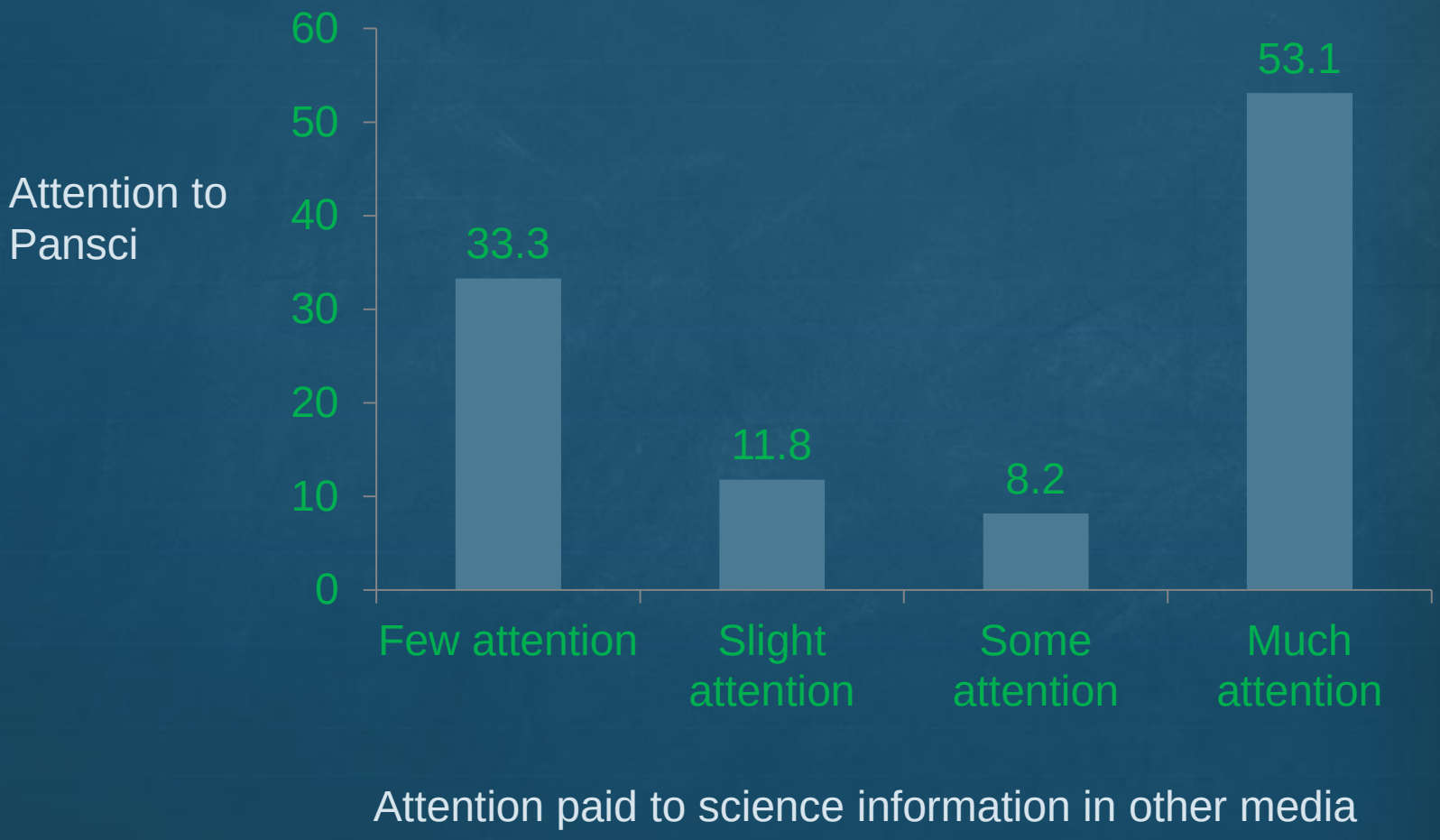


- About half of the users never shared or responded to information posted on Pansci

Gratifications of using social media

- Socializing: (1) meeting people with the same interests; (2) getting support from peers or friends; (3)meeting interesting people; (4) community/ sense of belonging. α = .83, m = 3.20, sd = 0.75.
- Recreation: (1) passing time; (2) habit; (3) interesting content; (4) enjoyable. α = .71, m = 3.78, sd = 0.59.
- Identification: (1) my friends are also using Pansci; (2) establishing good image; (3) building connections. α = .79, m = 2.57, sd = 0.80.
- Information: (1) learning new knowledge; (2) work/ study purpose; (3) practical information. α = .61, m = 3.93, sd = 0.60.

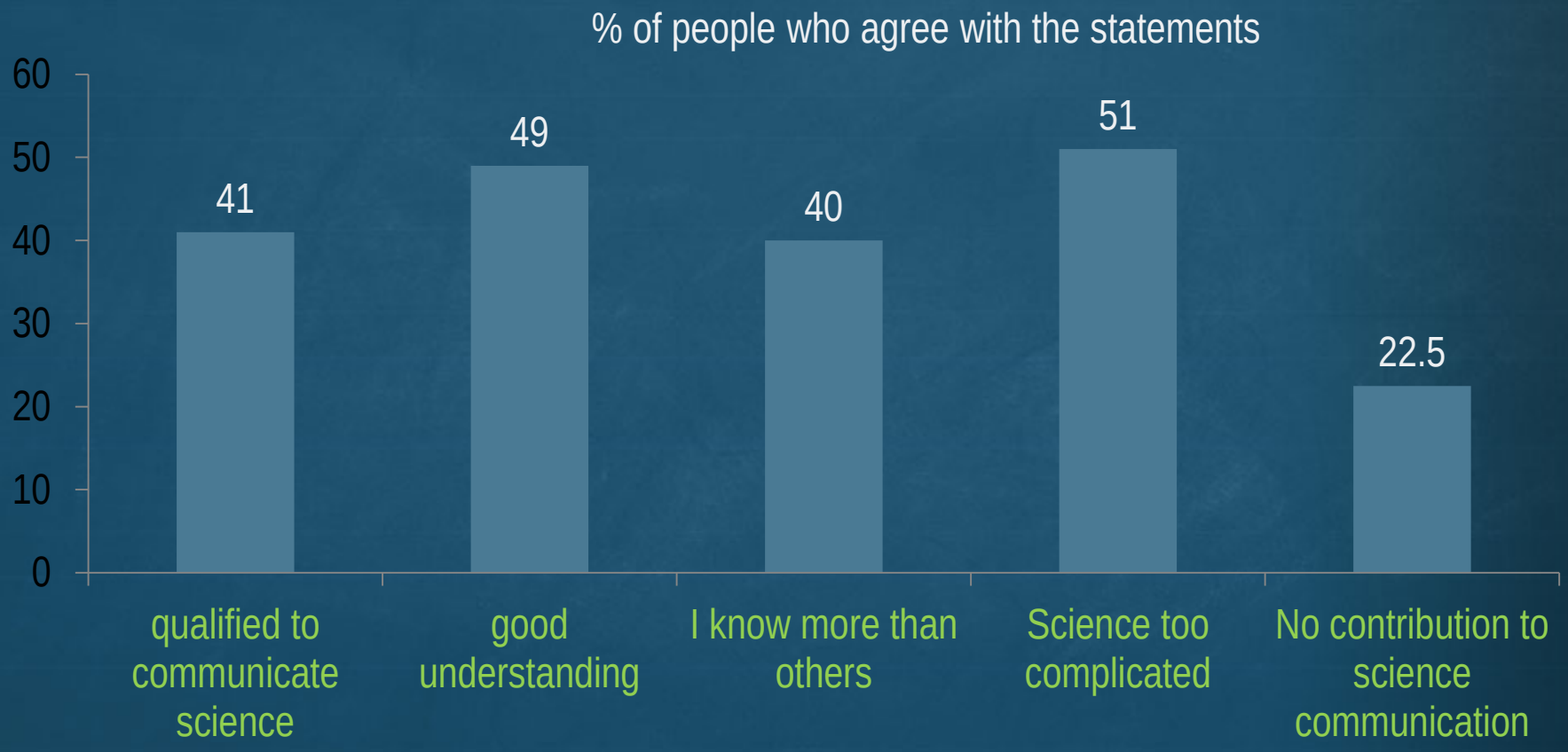
New users or old users?



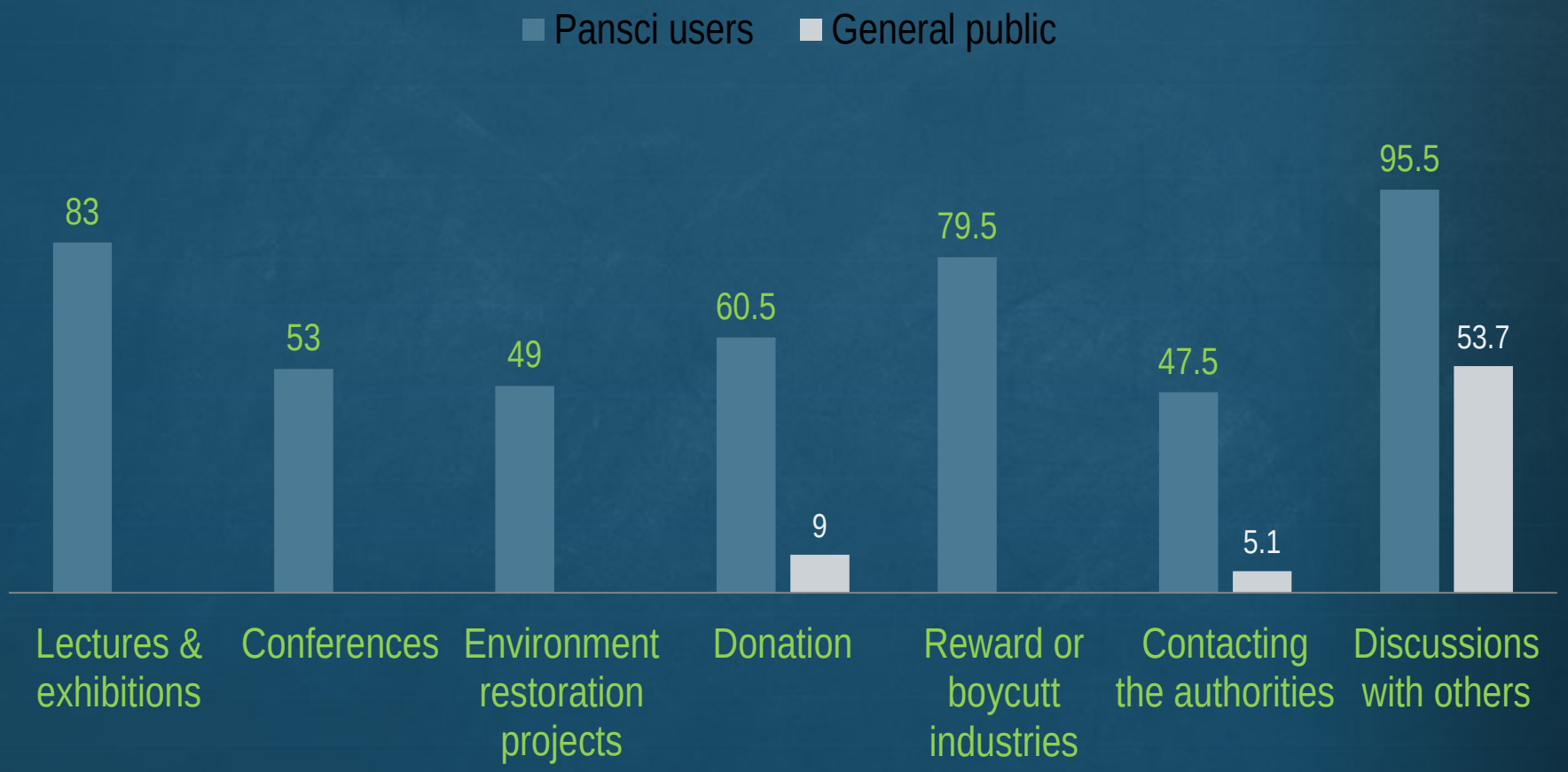
Correlations between use of different media platforms

	Pansci	TV/ NP/ Mag	Foreign Web site	Search online
Pansci	1			
TV/ NP/ Mag	.303**	1		
Foreign science Web site	.304**	.544**	1	
Search online	.410**	.374**	.528**	1

Perceived efficacy



Public involvement



Predicting efficacy & participation

	Efficacy	Participation
Age	.001	-.029
Gender (male=1)	.163*	.030
Education	.168*	.157*
Pansci use	.442**	-.075
M: socializing	.059	.229**
M: recreation	-.099	-.085
M: identification	.235**	.088
M: information	.018	-.130
Efficacy	--	.401**
R^2	30.2%	27.7%

*p < .05; **p< .01

Discussion

- Use of Pansci does not automatically guarantee more participation. Pansci use increases perceived self-efficacy, which, in turn, increases participation. That is, it has an indirect effect.
- Different from traditional uses and gratification theory, which emphasizes the importance of the information-seeking motivation, we do not find this variable relevant in the social media setting, especially with respect to science.
- Identification is related positively to perceived efficacy and socializing is related positively to participation.

Future project

- Social media, public engagement, and risk communication about climate change– how environment-related NGOs are using social media to increase the involvement of the general public.

Thank you!

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http://www.imics.nccu.edu.tw/showfaculty.php?F_ID=8

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