

## **E-voting technology is not neutral!**

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### **Introduction**

Voting procedures and technologies have to guarantee that elections are free and secure. Most of the procedural safeguards rely on the *social context* of the ballot. E-voting may seriously change this. If voters consider the new technology as less privacy protecting, as less secure, and as less accountable, they may change their voting behavior. This may influence their decision whether to participate in the vote, but also what they vote, and therefore the outcome of the ballot. In this paper, we try to investigate this empirically, based on an experiment with an Internet voting system. It is obvious that several social and procedural settings of ballots may change due to the characteristics of the new voting media. Let us summarize this briefly. Internet voting may

- change the *social interaction* during the ballot by changing the place of voting. Voting from home or from work may enable others to influence the voter;
- influence the voting decision, as social identity is *place* based;
- influence *trust* the privacy of the ballot, and this may effect the vote;
- extend the *time* span of the ballot, which may make possible that the voter hears about the intermediary results and change his/her vote accordingly.

Our main question is whether we find empirical effects of the use of new media on the *outcome* of the ballot. As e-voting enables people to vote from many different places and social contexts, this may influence the vote or opinion (bullet 2 above). And voters may be anxious that the voting technology is not very secret and that others may be able to find out about their vote. The level of trust may influence the voting behavior (bullet 3).

### **Design, hypotheses, data**

Voters (members of a Finnish rural community network) were asked their opinion about whether Finland should become member of the NATO or not. Participants could vote from home, school, work, or a kiosk, using CAWI technology or Internet-voting. Registration and voting with CAWI is much more simple than using a PKI based Internet voting system. For the latter the voter one has to provide extensive personal information. This results in a much stricter identification, but also in more possibilities (than in the case of CAWI) for backtracking the vote to the voter. Our hypothesis is that this all may result in different levels of trust in the privacy and security of the two systems, which may influence the ballot.

#### **Trust**

If a system is not *secure*, that means if the voter expects that the system is vulnerable for attacks from outside (hackers) and from inside (fraud) the system, the voter may be inclined to use another medium he/she expects to be more secure. Or, if no alternatives are available, the voter may be inclined to abstain from voting at all. If a system is not

*secret*, that means if the voter afraid that others will find out about his/her vote, the voter may be inclined to vote *politically correct*, or less radically and adapt to the *majority opinions* in cases when there is an expressed majority. The more sensitive the topic of the vote is, the stronger this effect is expected to be. The mistrust in the secrecy of the system may also result in not using it, and therefore lower the turnout. We test the following first hypothesis: The higher the trust in the secrecy (privacy) of the voting technology, the larger the probability that someone may express his/her minority opinion, which means in this specific case voting *for* NATO membership.

#### Identity

The second hypothesis relates the Internet voting technology to social identity. Internet voting enables people to vote from many different locations. If identity depends on the social context, and if the (voting) decision depends on the identity, we expect that the voting results vary with the voting place. For example, when voting from home, the voter may tend to perceive the world from a more 'private identity', whereas people being in a voting booth, at work or at school may tend to perceive the world from a more 'social or collective perspective'.

This implies firstly that home voters are expected to be able to resist the majority perspective, as they find themselves protected from peer pressure, and therefore we expect that within the home voters the share of pro-NATO opinions is higher than average. Secondly, being home may stimulate a private and more family identity, focusing on safety and protection, and this may influence people to vote for joining the NATO, while a more collectivist identity may focus more on the political aspects of joining the NATO. This leads to the second hypothesis: Voters from home will more often be in favor of Finland joining the NATO.

We have asked the voters to complete a pre-ballot questionnaire, and a one directly after the ballot, and these data will be used to test the two hypotheses.

#### Trust and voting behavior

The participants trust secrecy and privacy of the TruE-vote system more than the CAWI system. Consequently, we expect a larger number of TruE-vote users to vote in favor of entering the NATO. We also expect that when controlling for trust in privacy, the effect will become weaker or even disappear. Table 1 shows that the share of pro-NATO voters is indeed larger in the TruE-vote system, whereas the effect of media use seems to disappear when controlling for trust in privacy. However, the numbers are small and the results therefore should be interpreted prudently: more research is needed.

**Table 1: Vote BY Media (BY Trust in privacy)**

Voting media		Trust in privacy			NO Trust in privacy				
		TruE vote	CAWI	Total	TruE Vote	CAWI	Total		
Vote	Pro Nato	13%	10%	15%	0%	13%	13%	15%	13%
	No Nato	87%	90%	85%	100%	87%	87%	85%	87%
	Total (N)	92	20	33	6	39	56	13	69

## Place, identity, and voting behavior

We found a rather strong correlation between the place of vote and the score on the identity related variables. The effect of the place of voting on identity does not disappear when we control for sex – a variable that is expected to correlate with identity – as table 2 shows for the variable *voting is a private activity*. The effect is stronger for women than for men.

**Table 2: Private/collective BY voting place (BY sex)**

Voting place		Sex							
		Male			Female				
		Home	Out	Home	Out	Total	Home	Out	Total
Voting is a private activity	Yes	85%	52%	85%	53%	83%	85%	36%	71%
	No	15%	48%	15%	47%	17%	15%	67%	29%
	Total	75	25	41	11	52	34	14	48

We test whether home voters do vote differently than voters who voted elsewhere, and table 3 shows that this is the case. From the home voters 15% are in favor of joining the NATO, whereas 8% of the people who voted from elsewhere are in favor of joining the NATO. Controlling this again for 'sex' shows that male (12%) as well as female (18%) home voters more often vote in favor of joining the NATO than male (9%) and female (7%) voters from elsewhere. The data suggest that the effect is stronger for women.

**Table 3: Vote BY voting place (BY sex)**

Voting place		Sex							
		Male			Female				
		Home	Out	Home	Out	Total	Home	Out	Total
Vote	Pro Nato	15%	08%	12%	9%	11%	18%	7%	15%
	No Nato	85%	92%	88%	91%	89%	82%	93%	85%
	Total	67	25	34	11	45	33	14	47

## Conclusions and discussion

The data suggest that the voting media do have the predicted effects on the voting outcome. If new media do influence the participation in and outcome of polls and ballots, this would require rethinking the implications for design, regulation, and modalities of use of the new voting media.

## References

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