



# A/B Testing in Improving Conversion on a Website Case: Sanoma Entertainment Oy



Arento, Thomas

**Laurea University of Applied Sciences**  
Laurea Leppävaara

## **A/B Testing in Improving Conversion on a Website Case: Sanoma Entertainment Oy**

Arento Thomas  
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Laurea University of Applied Sciences  
 Laurea Leppävaara  
 Business Management Programme  
 International Marketing

Abstract

Arento Thomas

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61

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The purpose of this thesis is to study marketing possibilities of improved conversion rates on websites. The study was made for Sanoma Entertainment Oy's Gaming & Online unit. The main objective was to explore A/B testing as a tool to improve conversion rates by increasing click-through rates. The secondary objective was to test Google Website Optimizer as an A/B testing tool in comparison to current methods of A/B testing in Sanoma Entertainment Oy. The results of this study will be used as reference for future testing and website design.

The studying of A/B testing and different tools will be made by conducting two separate A/B tests for Sanoma Entertainment Oy. The first test will be conducted with a tool that the Gaming & Online unit has used in the past in conducting A/B tests called OpenX. The second test will be conducted by using Google Website Optimizer in order to detect whether it would be more suitable for Gaming & Online units testing needs.

The first test was performed on a preload banner which is a way to gain revenue for various Sanoma Entertainment Oy websites. The preload box was optimized in order for it to gain a higher click-through rate. The second test was performed on a pop-up advertisement that had no effect on revenue. The object was to test a new A/B testing tool Google Website Optimizer and maximize the click-through rate of the pop-up banner.

The objects for testing were chosen from areas that the Gaming & Online unit had been interested in optimizing. The test results were very close to our hypotheses because both areas had been studied beforehand. The test objects were altered according to the test results to maximize their conversion rates for the future.

Key words conversion, A/B testing, preload banner, click-through rate (CTR), banner

Supervisor Seppo Leminen

Laurea-ammattikorkeakoulu  
Laurea Leppävaara  
Liiketalouden koulutusohjelma  
Kansainvälinen Markkinointi

Tiivistelmä

Arento Thomas

**A/B -Testaus Konversion Parantamiseen Internetsivustolla, Case: Sanoma Entertainment Oy**

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Tämän tutkimuksen päämäärä oli selvittää konversion kasvattamisen mahdollisuuksia internetmarkkinoinnissa. Tutkimus tehtiin Sanoma Entertainment Oy:n Gaming & Online -yksikölle. Tutkimuksen päätavoitteena oli selvittää A/B testauksen mahdollisuuksista konversion parantamisessa kasvattamalla klikkausprosentteja. Toissijaisena tavoitteena oli Google Website Optimizer -työkalun testaus ja vertaaminen nykyisiin Gaming & Online -yksikön A/B testaamismetodeihin. Tutkimuksen tuloksia käytetään tulevaisuudessa lähteenä testauksessa, sekä internetsivustojen suunnittelussa.

A/B testausta ja siihen käytettäviä työkaluja tutkitaan suorittamalla kaksi A/B testiä Sanoma Entertainment Oy:lle. Ensimmäinen testi suoritetaan Gaming & Onlinen aiemmissa A/B testeissä käyttämällä ohjelmalla, OpenX:llä. Toinen testi suoritetaan Google Website Optimizer -ohjelmalla, jotta voidaan selvittää sen sopivuus Gaming & Online -yksikön testitarpeisiin.

Ensimmäisen testin kohteena oli latausmainos, joka on tapa tehdä pääomaa useilla Sanoma Entertainment Oy:n internetsivustoilla. Latausmainos optimoitiin, jotta sen klikkausprosentti saatiin kasvamaan. Toinen testi tehtiin ponnahdusikkunaan, jolla ei ollut pääomaa kasvattavaa vaikutusta. Toisen testin tarkoituksena oli tutkia Google Website Optimizer -työkalun ominaisuuksia ja maksimoida ponnahdusikkunan klikkausprosentti.

Testattavat osat valittiin, koska niiden optimointi oli ollut Gaming & Online -yksikölle haluttua. Tulokset vastasivat aiemmin tutkittuja hypoteeseja. Tutkitut osa-alueet muutettiin tutkimusten pohjalta optimoituun muotoon.

Asiasanat konversio, A/B testaus, latausmainos, klikkausprosentti, banneri

Ohjaaja Seppo Leminen

## EXECUTIVE SUMMARY

### A/B testing in marketing

A/B testing (split testing) is used in marketing to decide which option of two or more options is the best one for the company's needs. The options vary from a simple product to different slogans, colors, themes, ideas or other variables that the company is testing to get the best performance out of them. In the past A/B testing has been in use frequently when market research has been done to a product. Today, A/B testing is also used in websites to improve conversion rates or user satisfaction. If a website is making revenue on clicks that it gets from the users of the website, it is important to maximize the potential of the link in question to get more revenue out of it. Normally TV, magazine or radio campaigns have been planned and made beforehand. The results have been reviewed after the campaign has been run and possible changes have been made only then. Websites use A/B testing to monitor the performance of different campaigns during the beginning of the campaigns. After the best performing variation has been determined, it can be varied and tested more to maximize its potential. A TV advertisement or a radio advertisement cannot be changed so easily when it has been done, but for example a text link or a banner advertisement can be edited and implemented to a website quicker. An important part of A/B testing is testing the copywriting on a website. Many times a word, a sentence or a longer text with more explanation can make the difference when a user makes a decision. Improving the copywriting of advertisement texts is very important and A/B testing is a faster way to test different variations than in other forms of advertising.

### A/B testing in Sanoma Entertainment Oy

Sanoma Entertainment Oy has many websites. The Gaming & Online unit hosts different gaming related websites. The biggest of these websites is Pelikone.fi which is one of the top 30 websites in Finland on visitor numbers. Pelikone.fi has about 240 000 unique visitors every week. Sanoma Entertainment Oy uses A/B testing to improve advertisement performance in Pelikone.fi. Most of the revenue for Pelikone.fi is made by banner advertisements, text advertisements and different sponsored campaigns. Sponsored campaigns like company skinned games, sponsored game competitions or other sponsored competitions all rely on the visitor numbers of the website. The more visitors a website has, the more money it can charge for a campaign. Company skinned games are basic Pelikone.fi made games with company logo's or products on them. For example a card game can have some company's products or brands in the cards. A sponsor skinned game makes more revenue the more people play it. A/B testing can be used to make the featured games thumbnail, description, name or placement the most appealing to users so they would click it more often. All of the mentioned parts of the game

link can be varied and the most appealing variations can be chosen to make more users try the game and add to the playcount.

### Problem with the A/B testing tool in Sanoma Entertainment Oy

Previously Sanoma Entertainment Oy has been able to make A/B tests only for banner advertisements. The program that has been used to make the tests has been an advertising software called OpenX. With OpenX the administrator of the website can make A/B tests simply by making different variations of the banner or text link and running them on the website randomly at a simultaneous timeframe. When all of the banners have been viewed by users thousands of times, the administrator can see the results which of the variations has been clicked the most. The variation that has gotten the best click-through rate has been the most successful variation and it will be implemented to the duration of the rest of the campaign period as the only variation that is shown to the users. The problem with OpenX as an A/B testing tool is that the administrator of the website cannot use it to measure anything else than what happens inside a banner or a text advertisement. Sanoma Entertainment Oy is interested in using additional software for A/B testing so that, e.g., the placement of the banner or text ad can be tested as well to improve its performance. Sanoma Entertainment Oy was interested in Google Website Optimizer A/B testing program since it has no costs and the company was familiar with other Google's website tools. Sanoma Entertainment Oy wanted more knowledge on how the tool works and if changes are needed to the operating or coding of Sanoma Entertainment Oy's websites. Pelikone.fi was the perfect candidate with a large userbase and the fact that it was being modified for future use.

### Case 1: Preloader informational text, reasons and preparations

The first case was an informational text on Pelikone.fi's preloader (preroll) advertisements then a user is waiting for a game to be loaded. Preroll advertisements are booming because even normal video advertisements can be used in the preloaders. Companies are interested in the preroll advertisement slot because they can use their normal video from a TV commercial when the game is loading. There have been over 200 million games played in Pelikone.fi with over 100 000 played every day. Preroll campaigns are more expensive and so they bring more revenue to Sanoma Entertainment Oy. Also a preroll cannot be skipped or ignored so easily since the main focus of a player is on the game window even as it is loading. Improving conversion on the preroll advertisement was of great importance to Sanoma Entertainment Oy and as the first case an A/B test was made to improve conversion on the advertisement. A common way in many preroll advertisements is to inform the user that clicking the advertisement will not affect on the loading time of the game. After all the users main focus is in getting the game loaded and starting to play it. Previously the prerolls had no such text at all

but still the prerolls were making good revenue. Two new variations were made, one with the informational text on the top of the preroll advertisement and one with the text below the advertisement. The original version with no text at all was the control in the test. In the first case the testing tool OpenX that had been used previously was used to better understand the weaknesses and differences when compared to Google Website Optimizer.

#### Case 1: Preloader informational text, results

As the informational texts on the preroll advertisements had been tested, Sanoma Entertainment Oy was able to improve the prerolls conversion rates with both variations. The one with the informational text on top came out as the best option of the three. The variation that had the informational text on top of the preroll advertisement has been implemented to the website permanently and is in use in all preroll ads. Conversion rates have been slowly increasing since. Sanoma Entertainment Oy has been able to make more revenue out of the preroll advertisements with a simple informational text that relaxes the user and there is one less reason to click the advertisement.

- Click-through rate for Original (control): 0,42%
- Click-through rate for Variation A: 0,55%
- Click-through rate for Variation B: 0,46%

#### Case 2: Survey Pop-up Advertisements, reasons and preparations

Surveys are used commonly to benefit different companies. Sanoma Entertainment Oy uses surveys in different websites to better their performance and in segmenting. A new gaming website Gamer.fi had been launched and a survey was planned to get more information on user segments and how to improve the marketing of the new website. Pelikone.fi was used to drive traffic to the new website and Sanoma Entertainment Oy wanted to know in which way they should handle the marketing and to which user segment they should focus on. For the second A/B test the survey itself was irrelevant. The focus was on how to get most users to take the survey so Sanoma Entertainment Oy could get more results and better performance of the survey. The main focus was on performing the A/B test with Google Website Optimizer to learn about the program and if it could be used in the future for different tests. The variations differed from each other in the benefits that the users could have in order to check which would be the best motivator to a user to take a survey in the future. The three variations also gave information on what drives a user to click a text advertisement the most. Compared to our previous results the most popular benefits for a user to do anything were time consumption and compensation for clicking the advertisement. The original (control) was a text that asked the user to take part in a survey. In the first variation the text was varied to implement that the user would not have to spend much time at all in the survey. The

second variation implemented that the user could win prizes if the person filled the survey. The focuses on the variations were in the headers as users would most likely read them first. The additional information was all written in the text below the header and that didn't vary at all. When using the Google Website Optimizer a great deal was learned about the program and the changes that had to be made in order to benefit more from the program. The focus was on the strengths and weaknesses the program had when compared to the previously used program OpenX.

### Case 2: Survey Pop-Up Advertisements, results

Sanoma Entertainment Oy learned that making surveys more frequent and shorter could benefit them in the future. Users were clearly more eager to take a survey when the header text implemented that the survey would only take a minute of their time instead of an undefined amount of time. The winner with a substantial difference compared to the original or the first variation was the variation which implied that the user had a chance to win prizes. This came as no surprise since compensating the time taken on the survey is a very common way of getting more people to fill one. Since prizes are not always available, Sanoma Entertainment Oy was more interested in the time aspect when promoting surveys.

- Click-through rate for Original (control): 0,58%
- Click-through rate for Variation A: 0,80%
- Click-through rate for Variation B: 2,22%

### Google Website Optimizer in comparison to OpenX

Using the new A/B testing software, Google Website Optimizer, turned out to be easy in general, but hard in Pelikone.fi's case. The software is very specific on certain areas and needs an environment that has been constructed with the software in mind. However Sanoma Entertainment Oy was interested on the potential and is investigating the possibility to alter Pelikone.fi and other websites so that Google Website Optimizer could be put into use. The OpenX software was a lot easier to use since it does not need any alterations to the website. However it could only be used for the banner advertisements and for this reason it is not as flexible as the Google Website Optimizer. Both softwares performed equally well in collecting and analyzing the data.

### Conclusions and recommendations

A/B testing is a very powerful way of getting the best results out of advertisement and website performance in general. Conversion rates were improved in both test cases. The results of case 1 were straightforward and the changes that were recommended by A/B testing have



been implemented and are used on Sanoma Entertainment Oy's websites. The results of case 2 were also interesting and Sanoma Entertainment Oy is planning on changing the methods in which they have marketing surveys. Google Website Optimizer turned out to take more work as originally planned if the program is to be used in different websites. Still the benefits and potential of the program is substantial and Sanoma Entertainment Oy should implement the changes to their websites in the future when they are making big updates. However the cost for coding a website that is as large as Pelikone.fi is substantial so the changes cannot be implemented in the near future. Google Website Optimizer is also capable of doing multivariate testing which is more thorough and complicated way of A/B testing. It allows more thorough and complete testing however which has a lot of potential.

### A/B testaus markkinoinnissa

A/B testausta käytetään markkinoinnissa selvittämään mikä vaihtoehto kahdesta tai useammasta vaihtoehdosta sopii parhaiten yrityksen tarpeisiin. Vaihtoehdot voivat olla fyysisiä tuotteita, iskulauseita, värejä, teemoja, ideoita tai muita muuttujia joita yritys testaa parhaan suorituskyvyn aikaansaamiseksi. Ennen A/B testausta on käytetty usein markkinatutkimusten muodossa tuotteille. Nykyään A/B testausta käytetään internetsivustoilla kun halutaan parantaa konversiota tai käyttäjätyytyväisyyttä. Jos internetsivusto tekee tuottoa klikkauksilla joita se saa käyttäjiltä, niin on tärkeää maksimoida kyseisen linkin potentiaali jotta siitä saadaan enemmän tuottoa. Normaalisti televisio-, lehti- tai radiomainoskampanjat on suunniteltu ja tehty etukäteen. Kampanjan tuloksia on tutkittu jälkikäteen ja muutoksia on pystytty tekemään vasta kun kampanja on jo ollut ohi. Internetsivustot käyttävät A/B testausta jotta ne voivat tarkkailla kampanjan suorituskykyä reaaliajassa. Kun tarkkailun tuloksia alkaa selvitä, voidaan kampanjan ominaisuuksia muuttaa niin, että kampanjasta saadaan maksimaalinen tulos. Televisio- tai radiomainosta ei voi muokata helposti lennosta kun taas esimerkiksi internetsivuston mainosbanneria voi muokata ja vaihdella nopeammin. Yksi tärkeimmistä testattavista asioista internetsivustolla on sisältöteksti. Usein sana, lause tai paremmin ja tehokkaammin kirjoitettu kappale voivat olla ratkaisevana tekijänä käyttäjän päätöksissä. Sisältötekstin parantaminen mainoksissa on hyvin tärkeää ja A/B testaus on nopea tapa testata erilaisia vaihtoehtoja ja tehdä muutoksia tulosten mukaan.

### A/B testaus Sanoma Entertainment Oy:ssä

Sanoma Entertainment Oy:llä on monia internetsivustoja. Gaming & Online -yksikkö ylläpitää erilaisia peleihin ja pelaamiseen liittyviä internetsivustoja. Suurin näistä sivustoista on Pelikone.fi, joka on yksi kolmestakymmenestä suurimmasta internetsivustosta Suomessa kävijämäärillä mitattuna. Pelikone.fi -sivustolla käy viikoittain noin 240 000 yksittäistä kävijää. Sanoma Entertainment Oy käyttää A/B testausta parantaakseen mainosten suorituskykyä Pelikone.fi -sivustolla. Suurin osa Pelikone.fi -sivuston tuotosta saadaan bannereilla, tekstilinkeillä ja erilaisilla sponsoroiduilla mainoskampanjoilla. Sponsoroitujen kampanjoiden kuten yrityksen grafiikoilla muokattujen pelien, sponsoroitujen pelikilpailujen ja muiden sponsoroitujen kilpailujen hinnoittelu tapahtuu kävijämäärien perusteella. Mitä enemmän kävijöitä sivustolla on, sitä enemmän rahaa voidaan veloittaa mainoskampanjasta. Yrityksen grafiikoilla muokatut pelit ovat pelejä, joissa pelin teema vastaa yrityksen brändiä tai tuotteita. Esimerkiksi korttipelissä voi olla yrityksen logo kortin kääntöpuolella. Mitä enemmän sponsoroitua peliä pelataan, sitä enemmän rahaa se tuottaa Pelikone.fi -palvelulle. A/B testauksella voidaan muunnella etusivulle nostetun pelin kuvaa, kuvausta, nimeä tai paikkaa sivustolla, jotta se on mahdollisimman houkuttelevan näköinen käyttäjille. Kaikkia

näitä ominaisuuksia voidaan testata A/B testauksella, jolloin löydetään käyttäjälle houkuttelevin vaihtoehto ja peli saa enemmän pelaajia.

#### Ongelma A/B testaustyökalussa Sanoma Entertainment Oy:ssä

Aiemmin Sanoma Entertainment Oy on voinut tehdä A/B testejä vain mainosbannereihin. Ohjelma jota on käytetty A/B testaukseen on mainitusohjelma OpenX. OpenX -ohjelmalla sivuston ylläpitäjä voi tehdä A/B testejä näyttämällä eri variaatioita mainosbannerista tai tekstilinkistä satunnaisesti saman ajanjakson ajan. Kun kaikkia mainosbannereita on näytetty käyttäjille tuhansia kertoja, ylläpitäjä näkee tuloksista, mitä variaatiota on klikattu eniten. Se variaatio joka on saanut parhaan klikkausprosentin on paras vaihtoehto ja se valitaan ainoaksi näkyväksi vaihtoehdoksi kampanjan loppuun saakka. OpenX -ohjelman ongelma A/B testaus työkaluna on, että sitä ei voida käyttää minkään muun kuin mainosbannereiden sisällön suorituskyvyn mittaukseen. Sanoma Entertainment Oy on kiinnostunut käyttämään sellaista A/B testityökalua joka pystyisi mittaamaan myös esimerkiksi bannerin paikan optimointia jotta sen suorituskykyä saataisiin parannettua. Sanoma Entertainment Oy on kiinnostunut Google Website Optimizer -työkalusta A/B testaukseen koska se on ilmainen ja yrityksen työntekijät olivat jo käyttäneet muita Googlen internet työkaluja. Sanoma Entertainment Oy halusi enemmän tietoa kuinka työkalu toimisi ja mitä vaatimuksia se asettaisi internetsivustoille, jotta testaaminen onnistuisi työkalulla vaivatta. Pelikone.fi oli paras ehdokas testausta varten, koska suurten kävijämäärien vuoksi testituloksia saataisiin helposti. Lisäksi sivuston koodia oltiin muokkaamassa ja muutoksia voitiin tehdä suhteellisen pienellä vaivalla.

#### Case 1: Latausbannerin tiedottava teksti, syyt ja valmistelut

Ensimmäinen case oli tiedottava teksti Pelikone.fi -sivuston latausbannerissa joka näytetään käyttäjälle kun peli latautuu. Latausbannerit ovat hyvin suosittuja mainostajien keskuudessa, koska niihin voidaan lisätä esimerkiksi video joka sisältää yrityksen valmiin televisiomainoksen. Pelikone.fi -sivustolla on pelattu yli 200 miljoonaa peliä ja yli 100 000 peliä pelataan joka päivä. Latausmainoskampanjat ovat kalliimpia mainostajalle ja ne tuovat enemmän tuottoa Sanoma Entertainment Oy:lle. Latausmainosta ei myöskään voi ohittaa tai jättää huomioimatta yhtä helposti, koska pelaajan huomio on peliruudussa pelin ladatessa. Klikkausprosentin kasvattaminen latausmainoksessa oli Sanoma Entertainment Oy:n edun mukaista ja ensimmäisen A/B testin tarkoituksena oli lisätä mainoksen klikkausprosenttia. Yleinen tapa monilla pelisivustoilla on lisätä teksti joka kertoo käyttäjälle, että mainoksen klikkaaminen ei vaikuta lataukseen millään tavalla. Käyttäjä ei halua ottaa riskiä että lataus keskeytyy jos mainoksen klikkaaminen viekin hänet toiselle internetsivustolle. Aiemmin Pelikone.fi -sivustolla ei ollut kyseistä tekstiä latausmainoksen yhteydessä ja mainoksista

saatiin silti hyvin tuottoa. Latausmainoksesta tehtiin kaksi uutta variaatiota jossa toisessa oli tiedottava teksti mainoksen päällä ja toisessa mainoksen alla. Alkuperäinen versio jossa ei ollut tekstiä, toimi testissä vertailukohtana. Testissä käytettiin Sanoma Entertainment Oy:n aikaisemmin käyttämää OpenX -ohjelmaa jotta sen vahvuuksia ja heikkouksia voitiin myöhemmin verrata Google Website Optimizer -ohjelmaan.

#### Case 1: Latausbannerin tiedottava teksti, tulokset

Testin tulosten perusteella Sanoma Entertainment Oy pystyi parantamaan latausbannerien klikkausprosentteja molemmilla variaatioilla. Variaatio, jossa tiedottava teksti oli mainoksen päällä sai parhaan tuloksen kolmesta vaihtoehdosta. Parhaan tuloksen saanut variaatio on otettu käyttöön pysyvästi Pelikone.fi -palvelussa ja sitä käytetään kaikissa latausbannereissa. Klikkausprosentit ovat hitaasti kasvaneet testien jälkeen. Sanoma Entertainment Oy on onnistunut saamaan enemmän tuottoa latausbannereista yksinkertaisella tiedottavalla tekstillä, joka rentouttaa käyttäjän ja antaa hänelle yhden syyn lisää klikata banneria.

- Klikkausprosentti alkuperäiselle (vertailukohta): 0,42%
- Klikkausprosentti variaatiolle A: 0,55%
- Klikkausprosentti variaatiolle B: 0,46%

#### Case 2: Kyselyn ponnahdusbanneri, syyt ja valmistelut

Käyttäjäkyselyjä käytetään usein tutkimusmuotona yrityksissä. Sanoma Entertainment Oy käyttää kyselyjä erilaisilla internetsivustoilla parantaakseen asiakastytyväisyyttä tai esimerkiksi asiakkaiden segmentoinnissa. Uusi peliaiheinen sivusto Gamer.fi oli juuri lanseerattu ja Pelikone.fi:n käyttäjille tehtiin kysely jotta sivuston markkinointimahdollisuuksia ja asiakassegmenttejä voitiin tutkia. Näin sivuston markkinointia voitiin suunnata paremmin ikäryhmiin jotka voisivat olla kiinnostuneita uudesta sivustosta. Toiselle testille itse kysely oli täysin epäolennainen. Päämääränä oli mahdollisimman monen käyttäjän osallistuminen kyselyyn. Päähuomiona casessa oli uuden A/B testaus ohjelman, Google Website Optimizerin käyttö, testaus ja opettelu tulevia testejä varten. Variaatiot erosivat toisistaan erilaisten käyttäjää mielyttävien tietojen osalta. Ne auttoivat ymmärtämään mitkä asiat saavat käyttäjän tekemään kyselyn. Sanoma Entertainment Oy:n aiempien kokemusten sekä aiheeseen liittyvien tutkimusten myötä suurimmat motivaattorit käyttäjille internetissä ovat palkinnot sekä vähäinen ajan kulutus. Vertailukohtana käytimme tekstiä joka pyysi käyttäjää osallistumaan kyselyyn. Ensimmäisessä variaatiossa tekstiin lisättiin tieto, että kyselyn täyttämiseen ei kuluisi aikaa kuin minuutti. Toinen variaatio ilmaisi, että käyttäjällä olisi mahdollisuus voittaa palkinto jos hän osallistuisi kyselyyn. Kaikista vaihtoehdoista muutettiin vain otsikkoa ja sisältöteksti pysyi samana. Google Website Optimizer -ohjelmaa käytettäessä opimme hyvin paljon ohjelman käytettävyydestä sekä

muutoksista, joita Sanoma Entertainment Oy:n sivustoille tulisi tehdä jos ohjelmaa käytettäisiin jatkossa muihin sivuston ominaisuuksiin. Google Website Optimizer -ohjelman heikkouksia ja vahvuuksia verrattiin OpenX -ohjelmaan.

#### Case 2: Kyselyn ponnahdusbanneri, tulokset

Sanoma Entertainment Oy oppi, että kyselyjen tekeminen useammin ja lyhyempinä voisi olla parempi vaihtoehto tulevaisuudessa. Käyttäjät ottivat osaa kyselyyn useammin kun otsikko ilmaisi että kyselyn täyttäminen veisi vain minuutin, kuin että kysely voisi mahdollisesti viedä kauemmin. Paras variaatio ylivoimaisesti oli variaatio B jossa otsikossa kerrottiin palkinnon arvonnasta. Tämä ei tullut yllätyksenä, koska palkinnon arvonta on suosittu keino saada erilaisiin kyselyihin vastaajia. Koska palkinnot maksavat rahaa, niitä ei aina ole saatavilla ja Sanoma Entertainment Oy olikin enemmän kiinnostunut vähäiseen ajankäyttöön viittaavasta vaihtoehdosta kyselyjä mainostaessaan.

- Klikkausprosentti alkuperäiselle (vertailukohta): 0,58%
- Klikkausprosentti variaatiolle A: 0,80%
- Klikkausprosentti variaatiolle B: 2,22%

#### Google Website Optimizer verrattuna OpenX -ohjelmaan

Uuden Google Website Optimizer -A/B testaus ohjelman käyttö osoittautui yleisesti helpoksi, mutta hyvin vaikeaksi Pelikone.fi -sivuston kohdalla. Ohjelma tarvitsee hyvin tarkat puitteet ja internetsivuston täytyy olla rakennettu alusta alkaen Google Website Optimizer -ohjelman ehdoilla. Sanoma Entertainment Oy:ssä heräsi kuitenkin kiinnostusta ohjelman hyötyjä ja potentiaalia kohtaan ja Pelikone.fi -sivuston muokkaamista ohjelmalle sopivaksi harkitaan. Sanoma Entertainment Oy:llä on myös muita sivustoja jotka voisivat hyötyä ohjelmasta jos sivustoja rakennettaisiin alusta alkaen tai muokattaisiin ohjelmalle sopiviksi. OpenX -ohjelma oli helppokäyttöisempi, koska se ei vaadi sille räätälöityä ympäristöä. Sitä voidaan kuitenkin käyttää vain mainoksien testaamiseen joten se ei ole yhtä monikäyttöinen kuin Google Website Optimizer. Molemmat ohjelmat suoriutuivat hyvin tiedon keräämisestä ja analysoinnista.

#### Päätelmät ja suositukset

A/B testaus on loistava tapa saada paras mahdollinen tulos mainoksesta tai ylipäätään internet sivustosta. Klikkausprosentit paranivat molemmissa caseissa. Ensimmäisen casen mittaustulokset olivat hyvin yksiselitteisiä ja testin suosittelema parannus on otettu käyttöön Sanoma Entertainment Oy:n internetsivustoilla. Toisen casen tulokset olivat myös mielenkiintoisia ja Sanoma Entertainment Oy aikoo muuttaa tapaansa tehdä kyselyitä. Google

Website Optimizer veisi enemmän aikaa ja tarvitsi enemmän työtä kun alunperin oli suunniteltu, jos ohjelma otettaisiin käyttöön Sanoma Entertainment Oy:n internetsivustoilla. Silti sen hyödyt ja potentiaali ovat kiistattomia ja Sanoma Entertainment Oy:n tulisi tehdä tarvittavat muutokset tulevien suurten päivitysten yhteydessä. Kuitenkin suurten internetsivustojen kuten Pelikone.fi -sivuston uudelleenkodeaminen on hyvin kallista, joten muutokset siirtyvät tulevaisuuteen. Google Website Optimizer -ohjelmalla voi myös tehdä monimuuttujatestejä jotka ovat perusteellisempia ja monimutkaisempia kuin A/B testit. Monimuuttujatesteillä voidaan testata esimerkiksi koko sivuston kaikki muuttujat ja optimoida sivusto täydellisesti.

## Table of contents

1	Introduction .....	17
1.1	Background of the study .....	17
1.2	Object of the study .....	17
1.3	Sanoma Entertainment Oy.....	18
1.4	Limitation of the study.....	19
	Table 1. Limitation of the study. ....	20
1.5	Structure.....	20
2	Internet marketing.....	22
2.1	Promoting a store through a website .....	22
2.2	Selling products through a website .....	23
2.3	Affiliate marketing.....	24
2.3.1	Cost per mille .....	25
2.3.2	Click-through rate.....	25
2.4	Sponsored Campaigns.....	26
2.5	Premium content.....	26
2.6	Other traffic related monetization options .....	28
3	A/B testing .....	29
3.1	What is A/B testing? .....	29
3.1.1	Basics of A/B testing.....	30
3.1.2	When is A/B testing being used?.....	32
3.1.3	Problems with A/B testing.....	32
3.1.4	A/B testing tool.....	33
3.2	Example case: Daily Burn website .....	34
4	Methods .....	37
4.1	Sources of information .....	37
4.2	A/B tests.....	37
4.2.1	A/B testing is quantitative testing .....	38
4.3	Testing .....	38
4.3.1	Preparations for Case 1: Preloader informational text.....	39
4.3.2	Preparations for Case 2: Survey Pop-Up Advertisements .....	41
5	Performing the tests.....	42
5.1	Case 1: Preloader informational text.....	42
5.1.1	The Variations .....	43
5.2	Case 2: Survey Pop-Up Advertisements .....	45
5.2.1	Google Website Optimizer.....	45
5.2.2	The Variations .....	47
6	Test results.....	49
6.1	Case 1: Preloader informational text.....	49

6.1.1	Results.....	49
6.1.2	Analysis of the results .....	51
6.1.3	What was achieved .....	53
6.2	Case 2: Survey Pop-Up Advertisements .....	54
6.2.1	Results.....	54
6.2.2	Analysis of the results .....	55
6.2.3	What was achieved .....	56
7	Future testing.....	57
7.1	After current results.....	57
7.2	AB testing.....	57
7.3	Multivariate testing .....	58
7.3.1	Google Website Optimizer .....	59
8	Conclusions.....	59
8.1	Tests.....	59
8.2	What was achieved? .....	60
	Literature references .....	61
	Article references.....	61
	Website references .....	62



## 1 Introduction

### 1.1 Background of the study

“The promise of better performing landing pages is often tempered by a fear of making things worse than they already are. How are you to know in advance what will or won’t work better? Don’t be afraid. You actually have access to a real expert, in fact thousands of them. You are interacting with them daily already, but you have mostly ignored their advice to date. The real experts on the design of your landing pages are your website visitors.” (Ash 2008, 6.)

The internet as a marketplace has almost endless possibilities. More and more websites are being made continuously and the competition for users is getting more intense. When designing a webpage it is extremely difficult to get people to a site and direct them to do what is best for business inside the site. There is data on the internet, about everything that internet users do and this data can be harnessed to a company’s needs. A/B testing (also known as “split testing”) is a way of comparing two or more different variations and using the data to optimize the performance of a website. This thesis will explain how A/B testing can improve the performance of a website and what can be tested with A/B testing.

#### Known problems in internet marketing

- Users are going to the wrong places in the website
- A large userbase is not monetized properly
- Monetization is not optimized for it’s maximum potential
- Users leave the website for an unknown reason

A/B testing has been used for decades in marketing. A/B testing and multivariate testing are booming in measuring website performance because the website’s administrator can obtain direct data about the users actions. A substantial amount of data can be accrued about user behaviour in the internet and the data can be used to optimize the performance of a webpage. A/B testing does not need polls or questionnaires and still a great deal can be learnt about which qualities users prefer more.

The data can be used for more efficient internet marketing efforts. A/B testing is used mostly to gain direct enhancements to a website’s content in order to get the user to focus on what the website administrator wants the user to focus on. It can help the website to make more revenue in various ways.

### 1.2 Object of the study

The subject “A/B Testing in Improving Conversion on a Website” has been chosen because Sanoma Entertainment Oy is looking to improve user’s conversion and optimizing their various websites to best suit their needs. The subject has acceptance from Gaming & Online unit’s supervisors to use the study to improve their services. This thesis is chosen to be made in English because the company is global and the thesis can be used more easily to benefit the company.

The object of the study is to improve A/B testing methods for Sanoma Entertainment Oy in order to better the marketing and other performance in their websites. Two separate tests are made in a Sanoma Entertainment Oy’s website to determine which variations might get better results.

The first test will be made by altering a preload banner, which Sanoma Entertainment Oy uses for marketing different products. The second test will be done in a banner that asks the users of the website to take part in a survey. Sanoma Entertainment Oy is interested in using Google Website Optimizer tool in the future to expand the areas in which the tests are made. The two tests will be done by using two separate A/B testing tools to determine if Google Website Optimizer suits better for the needs of Sanoma Entertainment Oy.

### 1.3 Sanoma Entertainment Oy

Sanoma Entertainment Oy is a part of the Sanoma Group. Sanoma Entertainment Oy hosts such services as Welho, Gaming & Online services and TV -channels Nelonen, KinoTV, Liv, Urheilukanava and JIM. There are also two radio channels Radio Rock and Radio Aalto.

Welho is the largest cable TV operator in Finland and provides a wide range of TV, broadband and telephone services on several different distribution platforms in the Helsinki Metropolitan Area.

“Welho’s fixed network covers more than 320,000 households, with more and more addresses gaining access to Welho’s broadband and TV services in the Helsinki Metropolitan Area via Welho DSL connections. Welho broadband is also available via wireless local area networks in central Helsinki.” (Welho -website, 2010)

With internet services provided by Welho and knowledge in entertainment gained from TV and radio programming and services, the online market was a natural step for Sanoma Entertainment Oy.

The Gaming & Online unit was founded in 2007. Pelikone.fi was launched as a test project for the unit and it became an instant hit. In 2008 Pelikone.fi became the largest gaming site in Finland and has remained on the top spot since. Nowadays the Gaming & Online unit also hosts other popular Finnish gaming sites such as Liigapörssi.fi and Älypää.fi. Handling the contents of various websites owned by Sanoma Entertainment Oy are tasks that are made on daily basis. The copywriting is extremely important on Sanoma Entertainment Oy's websites because Sanoma Entertainment Oy wants to promote their products and their other websites and services to the best that they can.

Sanoma Entertainment Oy is interested in using A/B testing in their websites to improve performance. However they can currently measure different variations on only banner advertisements that are on their websites. They wish to explore possibilities to expand their A/B testing to include every aspect in their websites. Google Website Optimizer is an A/B testing tool that is free to use and has captured the interest of Sanoma Entertainment Oy's marketers since a lot of measurements in the websites are already made with Google's tools. Sanoma Entertainment Oy is interested in using A/B testing in their websites to improve performance. However with current measuring methods they can optimize different variations on only banner advertisements.

#### 1.4 Limitation of the study

Currently the method for A/B testing in Pelikone.fi is using software called OpenX. The test which will be made using the OpenX software will concentrate on performing the test itself. This thesis will not go deeper into how OpenX is operated or how does it work. The test results will consist of numbers and percentages that will be achieved from the tests and for example no monetary values are shown in the results.

Google Website Optimizer will be used and the program is viewed more thoroughly than OpenX. However, how the tool works and how the coding itself is done will not be explained thoroughly. The results will not consist of monetary values but instead numbers that are achieved in click-through rates and the differences that are achieved in percentages.

The possible benefits that are achieved from the A/B tests such as improved click-through rates, better measuring methods and changes that are made using the test results are explained to a certain extent. However the future of possibly using Google Website Optimizer will not be decided during the making of this thesis and is therefore not reviewed further.

No follow-up tests are performed or planned during the making of this thesis. Planning will be done strictly on an idea level and some of these are mentioned in the conclusions.

A more thorough method of making performance testing on websites called multivariate testing is introduced in theory but will not be tested during the making of this thesis.

Table 1 shows what is limited from the thesis and what are the key areas that are focused on.

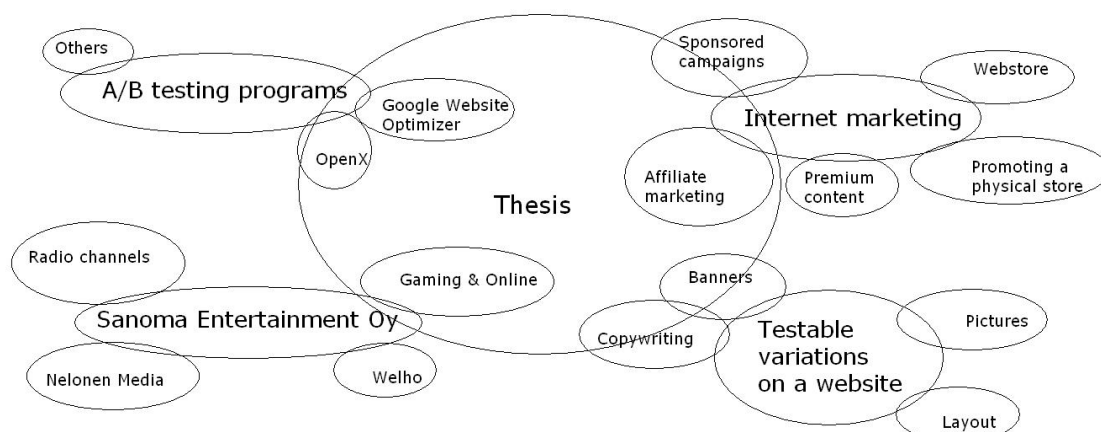


Table 1. Limitation of the study.

## 1.5 Structure

The following paragraph describes the content of this thesis and gives an overview of the subjects handled in this work. Table 2 shows how the chapters divide in theory and literature, A/B testing that was performed and finally analysis or conclusions.

	Theory	Testing		Analysis/Conclusions
1	Introduction			
1.1	A/B testing in internet marketing			
1.3	Sanoma Entertainment Oy			1.2 Object of the study
1.5	Structure			1.4 Limitation of the study
2	Internet marketing			
3	A/B testing			
3.1	What is A/B testing?			
3.2	Example case: Daily Burn website			
4.1	Sources of information			4 Methods
4.2	A/B tests			
		4.3 Testing		
		4.3.1 Preparations for Case 1: Preloader informational text		
		4.3.2 Preparations for Case 2: Survey Pop-Up Advertisements		
		5 Performing the tests		
		5.1 Case 1: Preloader informational text		
		5.2 Case 2: Survey Pop-Up Advertisements		
				6 Test results
				6.1 Case 1: Preloader informational text
				6.2 Case 2: Survey Pop-Up Advertisements
				7 Future testing
				8 Conclusions

Table 2. Structure of the chapters.

The first chapter (1 Introduction) introduces the subject and the reason of this thesis. Sanoma Entertainment Oy is introduced so that its role in the tests of this thesis is clearer.

The second chapter (2 Internet marketing) explains internet marketing methods. The chapter explains how internet marketing differs from regular marketing methods. The chapter has examples on how A/B testing can be used in different internet marketing methods.

The third chapter (3 A/B testing) will explain the theory of A/B testing. The definitions, methods and reasons for A/B testing are made more clear. A test that has been made by a non Sanoma Entertainment Oy -website will be used as an example on the theory of A/B testing and what can be achieved by A/B testing. The test has been made with Google Website Optimizer which helps in understanding what kind of results can be achieved with A/B testing or what kind of variations can be tested with Google Website Optimizer.

The fourth chapter (4 Methods) will focus on the methods and preparations that were made for the study and before the tests that were used in the study. This chapter consists of the preparations for both tests individually. Both tests use different programs in performing the test. Google Website Optimizer is being used for the first time by Sanoma Entertainment Oy and it requires different preparations than Openx -program. The chapters will also give more information on basic terms that are used throughout the thesis.

The fifth chapter (5 Performing The Tests) consists of the tests that are done. The first test will be done using OpenX and it is about improving conversion on a preload banner. The second test will be done using Google Website Optimizer and will focus on using the software as well as improving performance of pop-up banners. The second test is divided in two parts where the first one is about Google Website Optimizer as a tool and the second part is about the variations that were tested.

The sixth chapter (6 Test Results) will consist of the results, analysis of the results and what was achieved with the tests. Both tests are reviewed separately. The analysis of the results will go through the reasons that might have affected to the results. Finally the last part will go over what was achieved with performing the tests.

The seventh chapter (7 Future Testing) will go over the possibilities of A/B testing options that can be made after the tests of the thesis. It will also explain the next test Sanoma Entertainment Oy plans to make briefly. After A/B testing there is a brief explanation on multivariate testing which is more complicated than A/B testing but more thorough. Google Website Optimizer can be used to make multivariate tests and the program is reviewed for this purpose.

The eighth chapter (8 Conclusions) compiles the most important points of the thesis and analyses the achievements. The chapter will summarise some things that can be developed or handled more closely.

## 2 Internet marketing

### 2.1 Promoting a store through a website

The basic method of monetizing a website in a traditional way is promoting a service through a website. Many companies have websites with information, prizes, contact information and news about products. They still monetize the customers by driving them to the actual physical store. The traditional way of using a website is to promote products and give information on the store so that customers can decide to come to the store. Many company websites just lure customers to a shop without adding any purchasing features to the website itself.

In this method it is important to optimize the website to a certain keyword so that a customer can find it easily. For example if a store sells bicycles, they can promote the brands that they represent and the keyword “bicycle”. This way when a customer is looking for a good store to find a new bicycle, the person can see the brands and prices in order to compare it to other stores. A/B testing can be used to optimize the look and feel of the website to make it as attractive as possible for the customer. The front page should be optimized so that the customer would stay on the website and go through the product pages and contact information.

Figure 1 shows Laakkonen.fi’s website. Laakkonen sells cars in Finland. Of course nobody should buy a car from a webstore so Laakkonen.fi gives information on prices and where a buyer can find a local dealer. This promotes the stores so that customers can be lured in the store by giving information on models and prices that the store has.



**Laakkonen Konserni**

Laakkosen etusivu | Vaihtoautohaku | Yritysmyynti | Laakkosturva | Avoimet työpaikat | Konserni-info | Palaute

**Vaihtoautot** Vertailukori: 0 autoa  
» Näytä vertailukori

« Takaisin hakuvalikkoon

**Hauksen tulos: 34 autoa** Lajittelu Merkki ja malli (A-O)

<< alkuun < edellinen Sivu 1/6 seuraava > loppuun >>

	<b>BMW 116 D E81 Hatchback 3-ov Business</b> Esittelyauto Mekaanikonkatu 2, 00880 Helsinki, puh. 09 5407 4700	Vm. 2009	Aj. 1 tkm	Hinta 28800 €	» Lisää vertailukoriin » Yhteydenotto » Laske rahoitus
	<b>BMW 116 i E87 HB 5-ov</b> Esittelyauto Mekaanikonkatu 2, 00880 Helsinki, puh. 09 5407 4700	Vm. 2009	Aj. 3 tkm	Hinta 27900 €	» Lisää vertailukoriin » Yhteydenotto » Laske rahoitus
	<b>BMW 116 i E87 HB 5-ov Business</b> Esittelyauto	Vm. 2009	Aj. 4 tkm	Hinta 25900 €	» Lisää vertailukoriin » Yhteydenotto

Figure 1. Laakkonen website.  
(Laakkonen.fi -website, 2010)

## 2.2 Selling products through a website

“Online shopping grew by 19 per cent year on year in January, demonstrating the increasing importance of e-commerce to high-street retailers, according to the latest IMRG Capgemini e-Retail Sales Index.” (Mari. 2009)

The constant growth in online shopping has caught the interest of many companies. Most large companies have a webstore that can be used to purchase products through internet. This way they can sell products traditionally in a store, but also gain the benefit of selling products to customers that want the products delivered by mail or customers that are unavailable to visit the physical store.

Webstores have become a popular way to start a business easily for an entrepreneur. There are many tools to start webstores quite easily. Many entrepreneurs have chosen online shopping as the way to start out their business since it is cheaper than renting or buying business premises. A warehouse is also unnecessary since the products can be delivered straight from the factory to the customer or the entrepreneur’s house or garage can act as a warehouse.

A/B testing can be used to optimize the webstore so that buying a product is as smooth and compelling as possible. The main focus must be on the purchasing of products. The copy-writing and other elements should be as compelling as possible and A/B testing can be used to determine which combinations make the user more likely to buy a product.

Figure 2 shows the Verkkokauppa.com -website. Verkkokauppa.com has a physical store as well as a webstore. A customer can buy a product that is delivered by mail or the customer can just reserve a product and go buy it from a Verkkokauppa.com store. This way Verkkokauppa.com can use a website to either promote or sell products to the customer.



Figure 2. An example of a webstore.  
(Verkkokauppa.com -website, 2010)

### 2.3 Affiliate marketing

Affiliate marketing is adding links of other websites. There are two ways of monetizing the links that are added to a website. The first method is a payment for just showing the link to as many users as possible. The second method is getting paid by how many times a users click the link. The link can be a picture, text link or a banner.

Figure 3 is a view of Pelikone.fi' bottom half of the front page. There are two banner ads and an Ilta-Sanomat news headline box. Pelikone.fi makes revenue on each click to the banner ads. There are also text links on the left side of the page to various Sanoma Entertainment Oys websites. They do not make revenue to Pelikone.fi, but promote other Sanoma Entertainment Oy's websites in order to benefit from them as well.



platformer play puzzle  
shoot shooter skill  
sota sotapeli space  
sports stick super  
timing up

**KUMPPANIT**

[Gamer.fi](#)  
[Aivojumbppa - Brain Training](#)  
[Taukopelit](#)  
[Älypää Nettipelit](#)  
[Pelit-lehti](#)  
[Nelonen](#)  
[Radio Rock](#)  
[Radio Aalto](#)  
[Älypää Sudoku](#)



**Pelikone.fi - Lisäämme uusia nettip pelejä päivittäin**

Pelikone on suomalainen arcade pelihalli, jossa voit pelata ilmaisia nettip pelejä sekä julkaista itse tekemiäsi flash-pelejä. Pelikoneessa on tuhansia nettip eliä jokaiseen makuun mm. urheilupelejä, action-pelejä, älypelejä ja arcade-pelejä. Löydät tuhansien nettip elien valikoimastamme klassikoita kuten *Mahjong*, *Bubble Shooter*, *Solitaire (pasianssi)*, *Tetris* sekä *Bejeweled*. Etsi oma suosikkisi!




Figure 3: An example of banner advertisement  
(Pelikone.fi -website, 2010)

### 2.3.1 Cost per mille

Some banners use the CPM method to bring revenue to the owner of the site. CPM stands for “cost per mille”, and it refers to the cost for 1000 impressions. In the CPM method, the banner makes revenue also on the times of impressions (i.e. page views) it gets. For example if a banner with 1 € CPM is seen by 100,000 users it makes 100 € a month to the owner of the website. This method benefits on a high amount of visitors to the site. (Scocco 2008.)

For example in Pelikone.fi a great deal of revenue is made using the CPM method. Users visit many pages in the website and they might see a particular banner over 10 times during one visit. Pelikone.fi has a large amount of users by Finnish website standards. Placing of banner advertisements is important since too many advertisements on a website can annoy users.

### 2.3.2 Click-through rate

One of the most basic models is a banner or a text link ad that makes revenue according to the clicks it gets. When a user clicks the banner or text link, the website owner gets a certain compensation. In this model it is crucial to have a good click-through rate (CTR) which can be achieved by using A/B testing. With small changes in the words or pictures, the CTR can be improved. (Scocco 2008.)

In banner advertisements a good click-through rate will increase revenue directly when users click a banner more. With A/B testing a great deal can be made in order to get a higher click-

through rate. The copywriting on the banner, pictures, other graphics and the general feel of the banner can all be tested to get most benefit out of the banner. Usually it can be a small feature like the “click here” text that calls users to action and even a change in the font can have a difference.

## 2.4 Sponsored Campaigns

A sponsored campaign on a website is usually a promotional one. There might be a product or service which is given a great deal of attention for the duration of a certain period of time. The sponsored campaign is usually a series of links, banners or pictures. A campaign can include, e.g., a game, questionnaire, skin for a website or a video. A skin is a total “makeover” for the website. The website is transformed to look more like the brand in question. A sponsored campaign usually costs a certain amount of money to the customer and does not depend on how well the campaign works.

Figure 4 shows a sponsored campaign on Pelaajalehti.com -website. Pelaajalehti.com is a site for gaming related issues such as news, reviews and discussions. The middle part of the figure is the real Pelaajalehti.com that does not change. The campaign is promoting a game Dante’s Inferno. The whole background of the website has been transformed as a big advertisement. There is also a banner in the top of the website for the same game.



Figure 4. An example of a sponsored campaign.  
(Pelaajalehti.com -website, 2010)

## 2.5 Premium content

A website might be free to use, but a user is available to buy premium content to make the experience deeper. Some websites require payments if the user wants to use all of the features in the website. There is also a possibility in some websites to disable advertisements by

paying a monthly fee. The most common way of monetizing through premium content is to make the website entirely free to use, but adding value to the experience through payments.

Many websites that provide tools use this method. For example a questionnaire tool can be free to use in a website. If a website administrator wants to add a questionnaire to a website, it is better to use a tool that is ready rather than trying to make a questionnaire tool. A readily made questionnaire tool can be used for free, but if the administrator wants more answers or more detailed statistics, a payment may be required.

Aivojumppa (figure 5) is a website where the user can do different brain training exercises. The exercises are meant to improve the user's memory and logic through a series of daily brain exercises. The website offers a free test to measure the user's "mental age". After the test a user can start using the exercises daily by paying a monthly fee. This way a user can use the website for free at first, but to unlock all of the brain training exercises, statistics and personally recommended exercises the user needs to pay money to the website.



Figure 5. An example of a premium content website.  
(Aivojumppa.fi -website, 2010)

Notice in figure 5 that everything on the website has been A/B tested to look and feel as warm and welcoming as possible. A great deal of focus is given to registering to the service and taking the free test. The free test is usually the first step for a user in registering and subscribing for a premium account.

Pelikone.fi uses avatars in the website. Avatars are personalized characters that represent the user in the website. The avatar editor can be seen in figure 6. The user can buy clothes and accessories to the avatar in order to make it look more personal and unique. Micropayments are a great way to monetize a website. For example, Pelikone.fi has virtual currency called “Nachos”. If a user buys Nachos, a bank transfer or a text message is required. One nacho cost’s about 0.05€. In figure 6 the shirt in the top left corner cost’s 10 nachos which is about 0.5€. The shirt is cheap to buy, but if a user wants to make a truly unique avatar, the costs can go up to several euros.

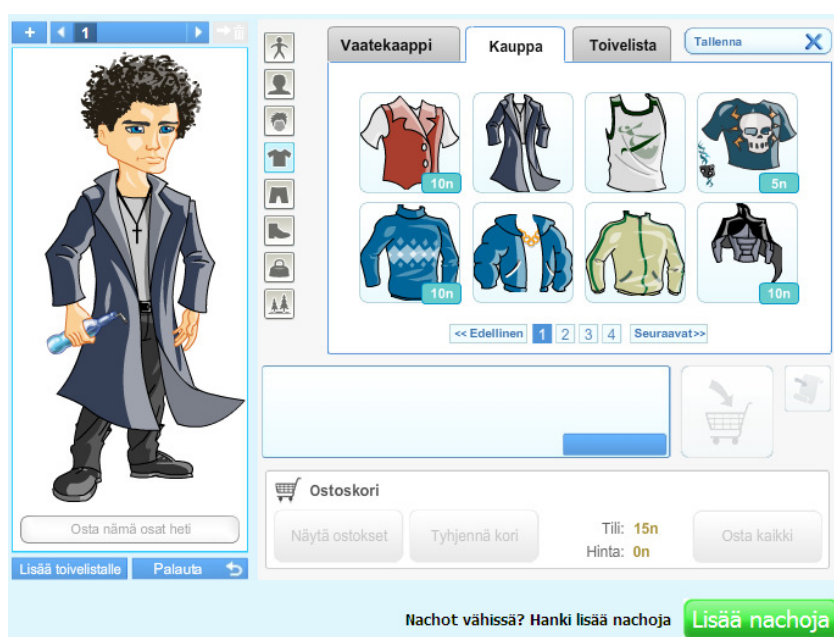


Figure 6. An example of micro payments.  
(Pelikone.fi -website, 2010)

The avatar editor should be A/B tested in order to optimize it for buying Nachos. The users focus should be on the premium content that the user can get with micro payments. The buying process should be optimized to be as smooth and compelling as possible.

## 2.6 Other traffic related monetization options

A substantial amount of traffic helps a website in monetizing the website better. A website can advertise in television or radio, but the most effective way of advertising a website is usually by internet advertising. A person is already surfing the internet so a link is a compelling and easy way of advertising the website to gain more users to the website.

With a large amount of users the website can make surveys and sell the results to other companies. For example a website can map the age groups of different services and sell the re-

sults to another website. The other website can then use the different focus groups in more personalised advertising.

If a website is able to get many e-mail addresses of its users, the mailing lists can also be sold or used in mass e-mail marketing campaigns.

A very popular website can build a brand around itself that can be used in many physical products. For example Älypää.com has made itself a well known brand for puzzles and trivia games in Finland. Älypää.com published a board game (figure 7) which used the brand as a sales booster.



Figure 7. An example of a website's brand.

### 3 A/B testing

#### 3.1 What is A/B testing?

The following part will explain what A/B testing actually is and how it can be used to benefit a website and improve performance. After the theory section there is an example case about A/B testing made by the Daily Burn website.

A/B testing has been used for decades in marketing. The basic example is a study group that, e.g., uses the same sneaker with Velcro and then with shoelaces. After this, the study group fills out a questionnaire and the data is used to decide whether the shoe would be more popular with Velcro or with shoelaces.

An A/B experiment allows you to test the performance of two (or more) entirely different versions of a page. Start with your original test page, the page whose content you want to test, then create alternate versions of that page. You can change the content of a page, alter the look and feel, or move around the layout of your alternate pages, whatever you choose. We'll vary traffic to your original page and your alternate versions, to see what users respond to best." (Google Adwords -website, 2009)

With A/B testing the owner of the website can get hard data on the decisions that are made in the website. This removes guesswork from the designing of a website completely. Although it is always called an A/B test, it can contain many variables, e.g., A, B, C, D and E.

Table 3 shows the workflow of an A/B test. This example table can be compared to case 1 in chapter 5.1. The preload banner on the left in this example table is the original (control) variation that is modified. The variation that is tested and modified can be anything on a webpage. After a research of possible variations, the most potential variations are selected. Then the test is set in motion by showing the different variations to website users for a period of time.

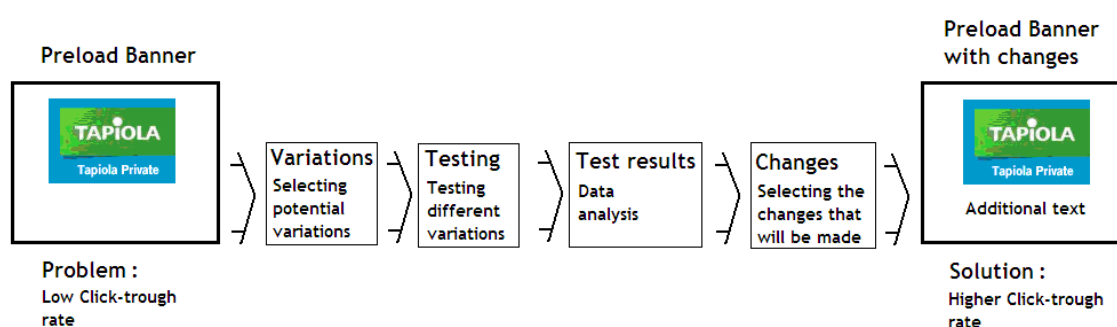


Table 3. Changes by A/B testing.

The test results are analysed and the best performing variation is chosen based on the analytics report and what suits the websites needs most accurately. Changes are implemented to the website and in this case the preload banner is modified to make a better click-through rate.

### 3.1.1 Basics of A/B testing

“Testing yields the most valuable results only when you test repeatedly. A one-shot test will tell you very little. But when you make a consistent habit of testing, cumulative tests over time can have a dramatic impact on the success of your site.” (McGlaughlin 2005.)

In an ideal case, you should do the tests repeatedly. In a lecture by Tom Leung in 14.09.2007 he shows a perfect example of evolving the website through continuous improvement. In this model, there are three parts.

1. Drive the right traffic to your site
2. Measure & analyze site activity
3. Test changes and implement winners

After the third step has been taken the process should be repeated again and again with the new improvements implemented until the site's conversion rate is 100%. (Leung 2007.)

An A/B test does not have to be a single variable in the website. In simple tests it can be a single picture, a sentence or a placement of a button for example. If more depth is needed to the test, it can also be done for the whole page or large portions of it. It is also possible to conduct an A/B test to the following pages. For example if the top navigation of the website is tested, the same navigation can extend to every page during the test.

In A/B testing there is always a chance that the test might not be accurate although some option would provide the best results. If there are many variables in the test, the one with the highest probability of beating the original version should be used although some other option might seem to get better results. (Leung 2007.)

In the experiments it is also important to see which option had the most impact on conversion rates. It might not be the best option during the first test, but if the data indicates that a certain option made a significant impact on user behaviour during the test, changes should be made to that option and it should be included in the next test as well. (Leung 2007.)

If there is need for further optimization and an A/B test is not thorough enough, the next step is multivariate testing. In multivariate testing the different variables are tested crosswise with each other and the tool calculates the best result for each variable in the site. After that the tool calculates the overall best performance to the site using the best combination of the variables. For example link button X might be worse in comparison with link button Y but when the buttons are combined with text Z, button X performs better with it. There is a more thorough description about multivariate testing in chapter 7.

### 3.1.2 When is A/B testing being used?

Table 4 shows where A/B testing is traditionally used. In the table a user comes to the website, sees a link and decides on whether or not to click it. If the user clicks a link, the user converts. A conversion usually leads to monetization. With A/B testing, the link can be made attractive to the user.

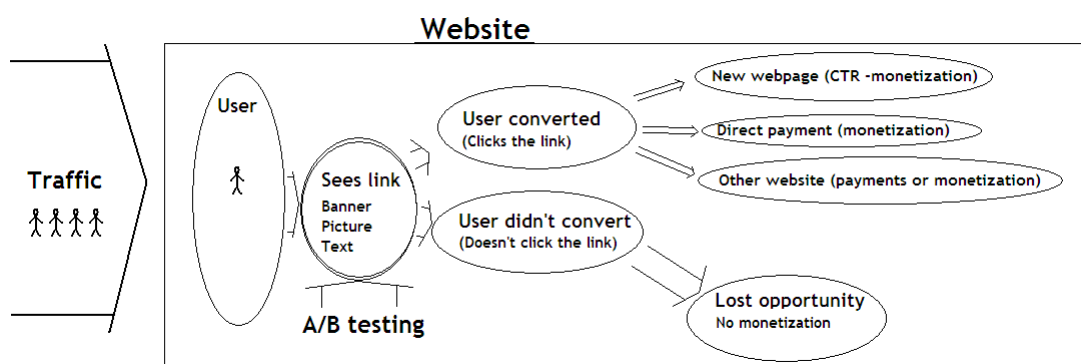


Table 4. How conversion affects monetization.

A user is a website's customer. The user can make revenue for the site in various ways. A/B testing can be used to lure users into the site. For example the description of the website can be seen when users use a search tool to find a site. They might not have visited the website before and the description will be the factor to whether they visit the website or not. With the right kind of description the results can be a lot better. The different descriptions can be tested with A/B testing. (Scocco 2008.)

A website with direct payment services will benefit from A/B testing by maximising the CTR on their own site. If for example a website is free to use, but a user can pay for certain benefits or improvements, it is very important to maximize the CTR to these products. Many internet users might like a website but are not willing to pay for the added value easily. In these cases A/B testing can be used to improve conversion so that the users would begin to use the paid services as well.

### 3.1.3 Problems with A/B testing

Marketers usually are content with the test results and the recommended changes are implemented right after the test has been made. There are however some problems with A/B testing that should be taken to consideration every time an A/B test is made.



### 3.1.3.1 Page views can be cyclical

Instead of a steady flow of users, the page views can vary from time to time. For example traditionally in Finland the amounts of users in webpages decrease during the summer and increase in the winter. The differences can be tens of percents. Also the amounts of users change during the time of day. In Pelikone.fi for example, the user rates are the highest at about six o'clock in the evening and drop during the night. The user groups also change depending on the time of day so it is important to have the A/B test running for at least a couple of days.

### 3.1.3.2 Page views can be trending

Page views might be increasing or decreasing at a constant rate. A constant often slow decrease or increase is called a trend. If the trending is going up or down on a large website it does not matter too much on the test results themselves. However user methods and behaviour patterns change in some cases in time. For example now when the iPod has become a popular device amongst people, more and more websites use buttons that call to action that look like the "yes" buttons from iPod's graphics. In this kind of case, a button that has been tested to work best might not be the best one after a certain period of time has passed. Tests should be done whenever possible and redone constantly.

### 3.1.3.3 A/B tests tend to ignore fluxuation

A constant error with A/B testing is to ignore fluxuation. When a test is done only once there is a possibility of getting misleading data. Usually when tests are done many times on the same thing, the results fluxuate and are not constantly improving or staying in the same position. Although the first A/B test gives a great deal of information on different variations and the trend can be seen fairly easily, followup tests should be done to see the fluxuation as a whole. In test 1 for example, the click-through rate can go up 30% for a variation but in test 2 it might go up only 15% or even go down from the original variation. Doing more tests allows a better view of the trend and can eliminate misinformation.

### 3.1.4 A/B testing tool

There are many A/B testing tools in the market but Sanoma Entertainment Oy is interested in Google Website Optimizer in particular. This is the best solution since Sanoma Entertainment Oy's websites are already being tracked with other tools made by Google like Google Analytics. Sanoma Entertainment Oy is already conducting some A/B tests on their websites with-

out using a specific A/B testing tool and therefore they are not interested in investing money to software licences. Since Google Website Optimizer is free to use, it is the best solution for the company.

### 3.2 Example case: Daily Burn website

As Google Website Optimizer tool is being tested, there have already been many A/B tests done with the tool by other companies than Sanoma Entertainment Oy. As an example case, a web article is being used where Google Website Optimizer improved the Daily Burn website's conversion rate (visitors that sign-up) with 20% and then again with an additional 16% improvement.

Daily Burn is a website for tracking a user's food consumption and exercising. It is a site for people to get data, statistics and help in their weightloss plans. At first the website had many different options to the user to choose from. When a website has many different options, the traffic is divided to the different sections and is not that focused. The traffic can be controlled to a certain extent by making the most important link to get more attention. In Daily Burn's case, they wanted users to click the "Sign Up Now, It's Free" -button.

"The following is a report of the Gyminee Website Optimizer landing page test, and it includes a description of the test that was run as well as analysis of the test results. This A/B test included three distinct page versions, including the original (control) (figure 8) homepage as well as two variations designed with conversion marketing best practices in mind:" (Ferriss 2009.)

**Gyminee**  
Stay motivated. Have fun. Get fit.

Login Sign Up

**My Locker Room**  
Daily Weight Progress  
Current Status  
Exercise Balance  
Nutrition Balance

**Workout and Food Tracking**  
Gyminee is the premier fitness social network for detailed tracking, online accountability, and motivation. Whether you are trying to lose weight or get fit, it's time to start taking your fitness seriously.

- Track your workouts.
- Monitor your diet.
- Meet new friends.
- Reach your goals.

Signup For Free Take The Tour

Featured On: TechCrunch washingtonpost.com radar Mashable

[Click Here To Start Improving Your Health Today!](#)

Explore: Workout Programs | Food Search | Forums | Challenges | Exercise Library  
Contact Us | Advertising | Blog | Store | Legal Disclaimer | Privacy Policy  
© 2007-2008 Gyminee Corporation. Gyminee™ is a trademark of Gyminee Corporation.

Figure 8. Daily Burn -test Original (control).  
(Ferriss 2009.)



Figure 9. Daily Burn -test Variation B.  
(Ferriss 2009.)



Figure 10. Daily Burn -test Variation C.  
(Ferriss 2009.)

During the first run of the experiment the test saw about 7500 unique visitors and just under 2,000 conversions over the course of about 2 weeks. 7500 visits are not a lot but they are still statistically reliable. When the experiment was concluded, both variations B and C (figures 9 and 10) had outperformed the original version, and specifically Variation B left little statistical doubt that it had substantially increased the likelihood that a visitor would convert, or sign up for the Gyminee service. (Ferriss 2009.)

“We can see from the analysis of the data (figure 11) that Variation B (figure 9) had a large and significant effect on improving conversion rate. The winning version outperformed by the original by 12.7%, with a statistical confidence level of better than 98%. This means there is less than 2% likelihood that you would duplicate these results by chance.” (Ferriss 2009.)

Variation	Status	Est. conv. rate	Chance to Beat Orig	Observed Improvement	Conv. Visitors
Original	Enabled	23.1% ± 1.3%	—	—	584 / 2575
★ Combination 1 has a 98.4% chance of outperforming the original. <a href="#">Run a follow-up experiment</a>					
Combination 1 - Design B	Enabled	26.0% ± 1.4%	98.4%	12.7%	661 / 2542
Combination 2 - Design C	Enabled	24.1% ± 1.4%	77.4%	4.46%	600 / 2490

Figure 11. Daily Burn -test data analysis.  
(Ferriss 2009.)

A follow up experiment was then launched in order to provide more data and ensure that these results were repeatable. The follow up experiment was conducted as an A/B experiment between the original (figure 8) and Variation B (figure 9), and ran for approximately 1 week, over which time almost 6,000 unique visitors and about 1,400 conversions were recorded. About 6,000 visitors are less than in the previous test but they are still statistically reliable. (Ferriss 2009.)

“The results of this follow up experiment (figure 12) showed that Variation B (figure 9) outperformed the original by 16.2%, with a statistical confidence level of better than 99%.” (Ferriss 2009.)

Variation	Status	Est. conv. rate	Chance to Beat Orig	Observed Improvement	Conv. Visitors
Original	Enabled	22.9% ± 1.3%	—	—	636 / 2790
★ Combination 1 has a 99.7% chance of outperforming the original.					
Combination 1 - Design B	Enabled	26.6% ± 1.3%	99.7%	16.2%	734 / 2763

Figure 12. Daily Burn -follow up test data analysis.  
(Ferriss 2009.)

By using A/B testing the Daily Burn website was able to improve their conversion rate. We can also notice that the best performing option is the simplest one of the three candidates. This is a perfect example of a webservice that is free to use but has added value with direct payments.

## 4 Methods

### 4.1 Sources of information

The sources of information in this thesis are webpages, articles, literature and employees at Sanoma Entertainment Oy. A/B testing in webpages is usually done by people that use the internet a lot and thus have made a lot of web articles about their tests and A/B tests in general. Literature is also used about webdesign and testing. All sources of information can be found from the reference list.

This thesis will be reviewed by Timo Rinne and Fernando Herrera as it progresses. Fernando Herrera is the Director of Gaming & Online Operations department in Sanoma Entertainment Oy and he knows a great deal about A/B testing and different tools. He will also be helping on finding sources of information. He has been involved in Helsinki University of Technology's joint research institution Helsinki Institute for Information Technology. He has experience on many thesis projects and he has reviewed many of them as well.

Timo Rinne is the Head of Gaming & Online Operations at Sanoma Entertainment Oy. He is mainly interested in the studies and tests that will be done in this thesis and he will help in conducting the tests and on analysing the data.

### 4.2 A/B tests

This thesis will explain A/B testing through theory, example case and two A/B tests on a Sanoma Entertainment Oy's website. First the basic theory of A/B testing is introduced. Next there will be an introduction of a basic example case in what A/B testing can be used for (Daily Burn -website in chapter 3.2). Then a simple A/B test is performed using OpenX advertisement software which is one of the present ways of doing A/B tests on Sanoma Entertainment Oy's webpages.

In the A/B tests, first the current method of Gaming & Online department in making A/B tests is used with OpenX software. This method allows only banner advertisement measurement and cannot be used, e.g., to test copywriting, color schemes or other things that can have many variations. In the second test Google Website Optimizer tool is used to see if it would be better for Sanoma Entertainment Oy to start using the tool in the future for A/B testing. Finally this thesis will review the results of the tests and conclude on whether Sanoma Entertainment Oy should start using Google Website Optimizer tool to conduct the tests or do them manually as they have been doing them before. There will also be an introduction to using the Google Website Optimizer tool. The main focus will be in achieving benefits from the A/B tests that are conducted and in testing Google Website Optimizer to give information about the program to Sanoma Entertainment Oy.

Different variations of text, pictures or other parts of the tested variations require a visual demonstration in order to be clear to the reader. This is why pictures will be added straight to the text instead of them being collected into a separate appendix.

All of the tests used in this thesis will be real test cases that can help Sanoma Entertainment Oy better their conversion rates. Sanoma Entertainment Oy will benefit on the tests and they will be done under the supervision Timo Rinne and Fernando Herrera.

#### 4.2.1 A/B testing is quantitative testing

A/B testing uses numbers and data to measure test results. This makes an A/B test a quantitative test. Although the variables are chosen by qualitative methods, the different variations always have data in numbers.

“Quantitative research is used to measure how many people feel, think or act in a particular way. These surveys tend to include large samples - anything from 50 to any number of interviews.” (DJS Research Ltd. - Market Research World -website. 2009)

A/B tests also use large sample groups with performance measurements. Usually best results are achieved with more than 1,000 users. In the tests of this thesis the numbers are considerably larger and therefore valid results can be achieved.

#### 4.3 Testing

The testing was a long process mainly because of other priorities that Sanoma Entertainment Oy had. Testing was postponed many times due to other more important tasks.

Table 5 shows a timeline of the studies and tests. The timeline shows that performing the two tests, case 1 and case 2 took a long time. After the first case the recommended changes were implemented to Pelikone.fi website.

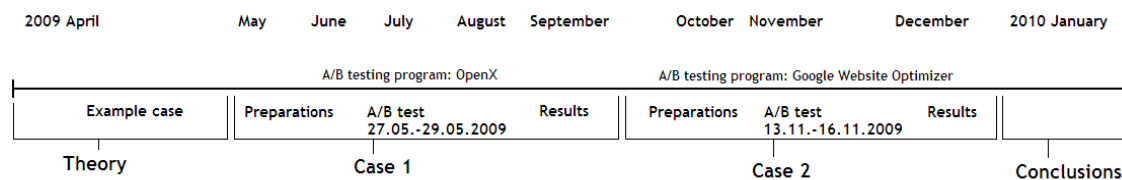


Table 5. Thesis timeline.

#### 4.3.1 Preparations for Case 1: Preloader informational text

The first test was done using advertising software OpenX. Although OpenX is not a genuine A/B testing tool, it can be used to make an A/B test. With the OpenX software a website administrator can insert and track banners or text advertisements. In banner advertising, when one banner is chosen and shown for a certain period of time to the users, it is called a campaign. OpenX lets the administrator choose the frequency and length of a campaign and he can get data of the campaign. If a banner is edited to different forms and all of the forms are shown simultaneously for different users for the same period of time, it is a proper A/B test.

Pelikone.fi is a website where a user can play free Flash games straight on his/her browser. Flash is a technology which is used to make graphics and animations. Flash has been a very popular technology in webpages since it can be used in various ways and it has a lot of advantages compared to other popular technologies. For example a Flash animation is lighter in file size than for example an animated picture which makes load times a lot faster. Also Flash allows interactivity and animated images do not. When compared to Java technology, Flash does not require any programming skills where Java does and this makes it a lot more accessible to use. Flash technology is used in different websites for making animations, videos, banners etc. A Flash game is a game that is made with Adobe Flash -technology and it can be played straight with the web browser without installing the game or downloading it. (W3Schools -website 2009)

Because the games are completely free for the user, an advertisement during the loading time of the game is a popular way of monetising the game. A banner shown on the loading screen is called a preroll banner. In Pelikone.fi a part of the revenue comes from preroll banners. The preroll can be a picture, an animation or a video clip that shows for three seconds before the game starts. Preroll ads are very appealing to advertisers, since especially a video clip is a great way to advertise before the game starts. As the preroll banner is one of the

most important advertisement slots for Pelikone.fi, A/B testing was to improve the click through rate for the prerolls.

Sanoma Entertainment Oy decided to try an information text with the preroll banners. In many cases Pelikone.fi users had thought that clicking the preroll banner during the loading process of a game somehow would slow down the loading process. In many other flash gaming websites, where the games have prerolls, there is a text indicating that clicking the banner will not slow down the loading process. A decision was made to add a similar text to Pelikone.fi's prerolls and test if it would improve the click through rate.

Figure 14 and figure 15 are two examples of such informational preroll texts. Both games are from a Flash gaming website called All Games All Free. In figure 14 the text is more straightforward than in figure 15, giving the information and doing it in a way that is easy for the user to spot.

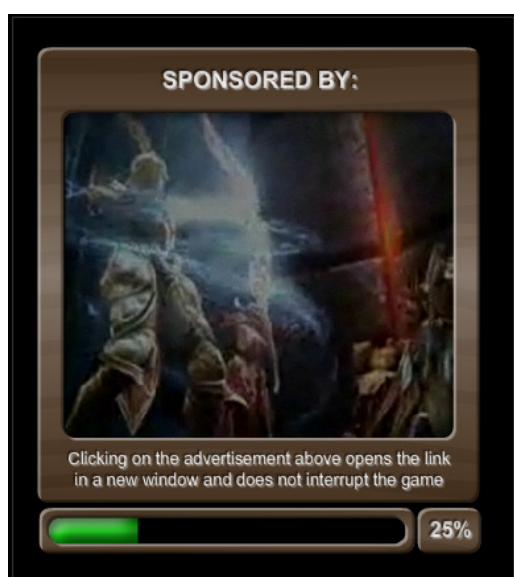


Figure 14. Informational text 1.  
(All Games All Free -website, 2009)



Figure 15. Informational text 2.  
(All Games All Free -website, 2009)

Figure 15 shows a preroll advertisement from a company, MochiAds. MochiAds is the biggest preroll banner advertiser in Flash games. They use preroll advertisements that are embedded in the game itself. This way it does not matter which site the particular game is on, the MochiAds preroll is always visible. MochiAds offers games for free to Flash gaming websites and their revenue comes from the preroll advertisements. Their informational text is much less visible. Actually it is only visible when a user moves the mouse cursor over the preroll banner so it needs to be activated in order for the user to notice it. Also it does not indicate that by clicking the advertisement the loading of the game is not interrupted. If an advertisement opens in a new window, it does not affect on the loading in the original window. It is indi-



cated, that the link opens in a new window, but still the fact that it does not interrupt loading is probably not familiar to all internet users and needs some technical knowledge as well.

Sanoma Entertainment Oy decided to go with a more visible and straightforward approach in the informational text. The text would be visible from the beginning of the preloader without the need to activate it somehow and it would be big enough so users would notice it.

#### 4.3.2 Preparations for Case 2: Survey Pop-Up Advertisements

The A/B test was done on pop-up advertisements that ask users to take a survey in a website. The actual survey itself was irrelevant to the A/B test. In the test, three different variations of the pop-up advertisement were shown to users. The object was to find out which pop-up advertisement converted the most.

Sanoma Entertainment Oy uses a great deal of surveys to obtain feedback from website users. Surveys are a popular way of gathering information on user behaviour. One of the most popular models for getting users to take a survey is a raffle involved in the survey. Also Sanoma Entertainment Oy has had experience that a time consuming survey is frowned upon by the users, so the test was performed to determine which quality had more effect on user behaviour. For the second case the A/B testing tool which was used was Google Website Optimizer.

The survey took place in Pelikone.fi. The survey itself was about MMO (Massively Multiplayer Online) -gaming in general and about Sanoma Entertainment Oy's new website Gamer.fi. Gamer.fi offers reviews, pictures, videos and other information for a gamer about different free to play MMO -games. This way the user has a chance to study through the basics on different games before the user chooses which game would be to his/her liking.

Google Website Optimizer is a program by Google, which is free to use and should be easy to use. First off, an account needs to be made to the program. After registration, the program gives instructions to the user and the test can be started.

“Before you set up an experiment, you'll need to determine which page you intend to use as the test page, the page where you'll run the experiment, and which page you intend to use as a conversion page, the page that means business results for you when reached by a user. You'll also need to decide which content you'll be varying on your test page. If you are performing an A/B test, you will need to create different versions of your test page.” (Google Website Optimizer -website, 2009)

In case 2, the control version of the pop-up was chosen as the test page in Google Website Optimizer. The survey was used as the conversion page because that is where the users should go. The contents variable in the test were header texts in the pop-up advertisements.

The scope of the test was simple since the main idea was to determine if Google Website Optimizer could be used more in the future instead of Sanoma Entertainment Oy's previous testing methods. This is why the test was simple, easy to perform and easy to get results out of.

Prizes have always performed well in improving conversion rates. A person is much more eager to do something if he can gain something in return. The other aspect was time. Internet users want pages to load fast. There have been many studies on loading speeds and how they affect a websites visitor numbers. More on this in chapter 6.2.2.1.

## 5 Performing the tests

### 5.1 Case 1: Preloader informational text

Sanoma Entertainment Oy decided to go with a more visible and straightforward approach in the informational text. Using the OpenX software three different variations of the preroll banner windows were made. It was important to use the three variations in a certain preroll banner campaign, because the content of the banner had to be constant. In this case the advertisement was for Tapiola financial services.

### 5.1.1 The Variations

The first variation (figure 16) was the original (control) where there was no text on the pre-roll.



Figure 16. A/B test case 1: Original (control).

(Pelikone.fi -website, 2009)

In the second variation, Variation A, (figure 17) a Finnish sentence "Mainoksen klikkaaminen ei keskeytä latausta" was added. In English this means "Clicking this add will not stop the loading process". The sentence was placed on top of the advertisement.

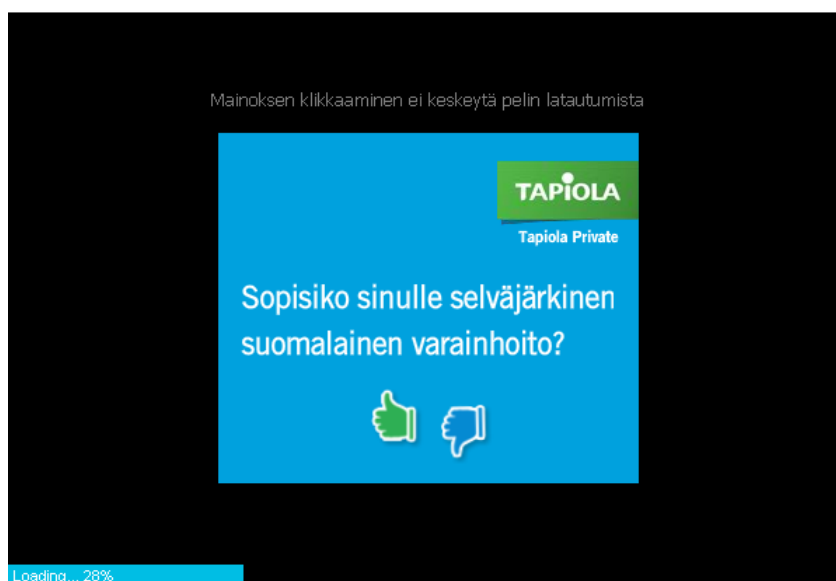


Figure 17. A/B test case 1: Variation A.  
(Pelikone.fi -website, 2009)

In the third variation, Variation B, (figure 18) the same sentence was added below the advertisement. This was a harder place for the user to notice the text at all but it also let the user concentrate more on the ad itself.



Figure 18. A/B test case 1: Variation B  
(Pelikone.fi -website, 2009)

After the three different banners had been edited, Sanoma Entertainment Oy started an advertisement campaign where they showed all three versions at random to the users. In order to get as much traffic as possible for these test prerolls, the frequency of this particular cam-

paing was set higher than the other campaigns. This would ensure that the users had a larger propability to see the test banners and more impressions would be gotten for them, making the test more reliable. The test was set to run for three days from 27.05.2009 to 29.05.2009.

## 5.2 Case 2: Survey Pop-Up Advertisements

Case 2 was performed with Google Website Optimizer instead of using OpenX that had been previously used. Google Website Optimizer took some learning and getting used to before the tests were able to be performed.

### 5.2.1 Google Website Optimizer

Performing a test with Google Website Optimizer turned out to be harder than first expected. The program is very specific on what it needs in order for a test to be performed. Pelikone.fi was not intended to be used in the way Google Website Optimizer needed to and some changes were made on the website's code in order to get the test working properly. Figure 19 shows the first step in Google Website Optimizer. Google Website Optimizer asks for webpage addresses for the different variations. In Pelikone.fi's case three different webpages had to be made with the survey pop-ups. Originally they were all in the advertising software as the survey pop-ups could be shown just like normal pop-up advertisements. The mechanism that Google Website Optimizer uses is ideal if a variation in a full webpage is being tested as all of the webpages have different addresses. The addresses must be valid in order to continue.

### 1. Name your experiment

The experiment name will help you to distinguish this experiment from others; your users won't see this name.

Experiment name:

Pelikone Survey

Example: My homepage test #1

### 2. Identify the pages you want to test

Name: Original	Original page URL: <a href="#">?</a> ✓ www.pelikone.fi/control Page found
Name: Variation 1	Page variation URL: <a href="#">?</a> ✓ www.pelikone.fi/minuutti Page found
Name: Variation 2	Page variation URL: <a href="#">?</a> ✓ www.pelikone.fi/palkinto Page found

[Delete](#)

[+ Add another page variation](#)

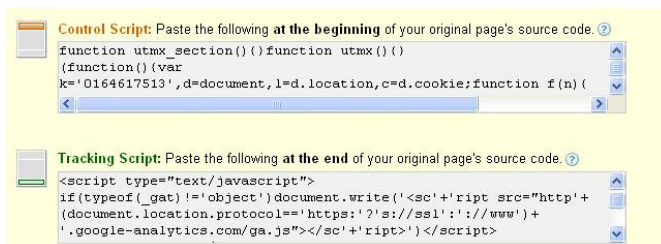
### 3. Identify your conversion page

Conversion page URL: ✓ www.pelikone.fi/kysely Page found
--

Figure 19. Google Website Optimizer -tool.

(Google Website Optimizer -website, 2009)

After the addresses had been verified by the program, JavaScript codes were created by the program which had to be implemented in the HTML -code of every variation and to the conversion page. The JavaScript codes help Google Website Optimizer in tracking the traffic from the tested links. Figure 20 has an example on the code as the program creates them. The website that uses Google Website Optimizer must have easy access to the code. Unfortunately Pelikone.fi has a structure that makes it quite impossible to add additional code without an update to the website. Also Google Website Optimizer is very strict on how and where the code should be in the HTML of the webpage.



```

Control Script: Paste the following at the beginning of your original page's source code.
function utmx_section() {}function utmx () {}
(function () {var
k='0164617513',d=document,l=d.location,c=d.cookie;function f(n){

Tracking Script: Paste the following at the end of your original page's source code.
<script type="text/javascript">
if(typeof(_gat)!='object')document.write('<sc'+ript_src="http'+
(document.location.protocol='https:'?'s://ssl':'//www')+
'.google-analytics.com/ga.js"></sc'+ript>')</script>

```

Figure 20. Google Website Optimizer -tracking code.  
(Google Website Optimizer -website, 2009)

The JavaScript code was implemented to the different variations of the pop-ups. However, Sanoma Entertainment Oy used a third party survey tool and was unable to add the code to the survey. A forwarding webpage had to be constructed. As the user clicked the link to take part in the survey, the user was taken to a webpage with the needed code and then redirected to the survey from there. This was inconvenient, but had to be done in the circumstances.

Google Website Optimizer is simple and easy to use only if a webpage has been made with the tool in mind. In this case, a change in the structure would have been needed for the whole website in order to make it work without any inconvenience to the user. If Pelikone.fi would have been made with Google Website Optimizer compatibility from the start, the tool would have been very easy to use even if the user of Google Website Optimizer had very little knowledge on HTML or JavaScript coding. The work was done with copying and pasting the scripts given by Google Website Optimizer for the most part.

### 5.2.2 The Variations

Three pop-ups were made. They all had similar texts except the header. The pop-ups appeared to users randomly. If a user had already been shown the pop-up, it would not appear again until the user returned to Pelikone.fi later. All users that took part in the survey had a chance to win prizes. Only one of the headers implied about a prize and other variations had the information about a prize below the header.

Figure 21 shows the control. This pop-up had been used before with different description. The header had been the same in previous occasions. The header simply asks a user to take part in a questionnaire and helping Sanoma Entertainment Oy to better their websites (“Help us by taking part in a survey!”).



Figure 21. A/B test case 2: Original (control).

Figure 22 has the second variation, Variation A. The focus in Variation A was on the short amount of time that was needed to fill the questionnaire. The header says “Help us by taking part in a one minute survey!”



Figure 22. A/B test case 2: Variation A.

The third variation (figure 23), Variation B, has a different structure in the header text as the control or the second variation. The sentence was longer and entirely different than in the control or Variation A. The header says “Win Pelikone prizes by taking part in a survey!” The header concentrates on the information that by taking the survey, there is a prize involved. The first three words are implying that the person can win prizes and the survey itself is not the main focus in the header.



Figure 23. A/B test case 2: Variation B.



All of the three variations were shown at random at a simultaneous period of time from 13.11.2009 to 16.11.2009.

## 6 Test results

### 6.1 Case 1: Preloader informational text

#### 6.1.1 Results

As 1,000 impressions per variation would have been enough for a valid test, every variation had over 10,000 impressions so the results were valid.

The original variation (control) (figure 16) where there was no informational text at all got the following results:

In total, the original variation of the preroll banner had been seen by users 48,795 times in three days. It was clicked 206 times in three days. The click-through rate for the preroll banner was 0.42% in total. These results can be seen from figure 24.

Day	Impr.	Clicks	CTR
29-05-2009	17,826	92	0,52%
28-05-2009	12,577	39	0,31%
27-05-2009	18,392	75	0,41%
View by: Day			
Total	48,795	206	0,42%

Figure 24. A/B test case 1: test results for Original (control) variation. (OpenX -website, 2009)

The second variation, Variation A (figure 17), had the informational text on top of the banner.

Variation A (figure 17) of the preroll banner had been seen 36,785 times during the three day period. The banner had been clicked in total for 203 times and it had a click-through rate of 0.55%. These results can be seen from figure 25.

Day	Impr.	Clicks	CTR
29-05-2009	6,190	31	0,50%
28-05-2009	12,078	64	0,53%
27-05-2009	18,517	108	0,58%
View by: Day			
Total	36,785	203	0,55%

Figure 25. A/B test case 1: test results for Variation A.  
(OpenX -website, 2009)

The third variation (figure 18) had the informational text below the preroll banner.

The third variation, Variation B, (figure 18) with the text below the preroll banner had 26,091 impressions during the three test days. It had been clicked 120 times and the third variation had a click-through rate of 0.46%. These results can be seen from figure 26.

Day	Impr.	Clicks	CTR
29-05-2009	6,273	30	0,48%
28-05-2009	12,264	51	0,42%
27-05-2009	7,554	39	0,52%
View by: Day			
Total	26,091	120	0,46%

Figure 26. A/B test case 1: test results for Variation B.  
(OpenX -website, 2009)

### 6.1.2 Analysis of the results

Figure 27 shows a chart on the click-through rates of the different variations. When compared to both Variation A and Variation B, the original (control) had the worst click-through rate. Clearly there is an impact between having the informational text on a preroll banner and not having one.

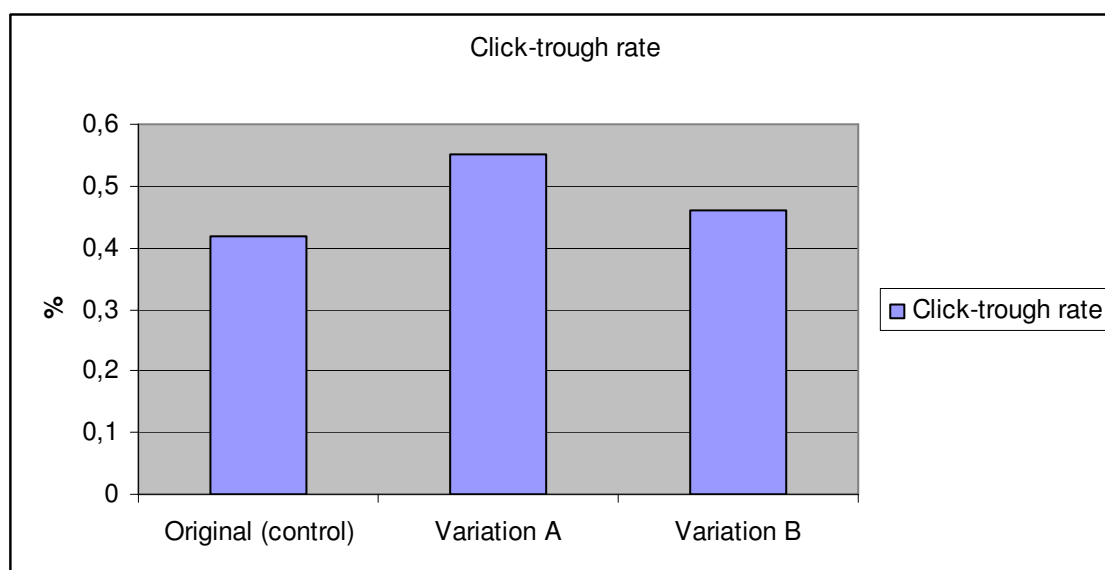


Figure 27. A/B test case 1: test results.

The click-through rate between the original (control) and Variation B was almost the same. The improvement of 0.04% in the overall click-through rate does not seem that significant. Still as the click-through rate was quite small to begin with, Variation B had about a 10% better click-through rate than the original (control).

Variation A was the most successful variation with a click-through rate of 0.55%. This is 0.09% better than in Variation B and a noticeable increase to the original with a 0.13% increase in the click-through rate. In overall conversion amount, Variation A performed about 20% better than Variation B and about 31% better than the original (control).

Variation A was the clear winner in the test as over 30% more users were likely to click the preload banner than the original (control) when there was a text above it indicating that the load time would not be affected by clicking the banner. This can be explained by studies on users reading web content which indicate that users see the content by starting at the top of the content. Content that is more further down might get very little if any interest by the users.

### 6.1.2.1 Eyetracking study by Nielsen Norman Group

Nielsen Norman Group's usability studies using eye tracking technology used eyetracking to see how a person reads a webpages content. Jakob Nielsen is a pioneer in eyetracking studies which can help in understanding how a website user sees the content of a website.

“In our new eyetracking study, we recorded how 232 users looked at thousands of Web pages. We found that users' main reading behavior was fairly consistent across many different sites and tasks. This dominant reading pattern looks somewhat like an F and has the following three components:

- Users first read in a horizontal movement, usually across the upper part of the content area. This initial element forms the F's top bar.
- Next, users move down the page a bit and then read across in a second horizontal movement that typically covers a shorter area than the previous movement. This additional element forms the F's lower bar.
- Finally, users scan the content's left side in a vertical movement. Sometimes this is a fairly slow and systematic scan that appears as a solid stripe on an eyetracking heat-map. Other times users move faster, creating a spottier heatmap. This last element forms the F's stem.” (Nielsen 2006.)

Figure 28 shows results on the eyetracking test with a heat map. The red areas are the “hot” areas which were viewed the most. The yellow areas got some attention followed by the blue areas that got the least attention but still got even some. The gray areas did not attract any fixations. This makes sense since the “western” type of reading in general is from left to right, starting from the top.



Figure 28. Eyetracking results.

(Nielsen 2006.)

“Obviously, users' scan patterns are not always comprised of exactly three parts. Sometimes users will read across a third part of the content, making the pattern look more like an E than an F. Other times they'll only read across once, making the pattern look like an inverted L (with the crossbar at the top). Generally, however, reading patterns roughly resemble an F, though the distance between the top and lower bar varies. If you squint and focus on the red (most-viewed) areas, all three heatmaps show the expected F pattern. Of course, there are some differences. The F viewing pattern is a rough, general shape rather than a uniform, pixel-perfect behavior.” (Nielsen 2006)

In the A/B test, the game itself is the content that the user is looking for in the page. It seems that adding a text above the preloader banner inside the game window supports the F pattern theory.

### 6.1.3 What was achieved

Since the A/B test all preload banners in Pelikone.fi have had the informational text above them. Results on click-through rates have increased by a substantial amount. The banners content determines if the banner is clicked more or less but clearly the informational text had a positive impact on the click-through rate. Sanoma Entertainment Oy was able to get a new standard in preroll advertising which will be used in the future. The same informational text was immediately implemented to another Sanoma Entertainment Oy's website, Taukopolit.fi. The test was a complete success.

Table 6 shows how the test progressed and what was achieved with the testing.

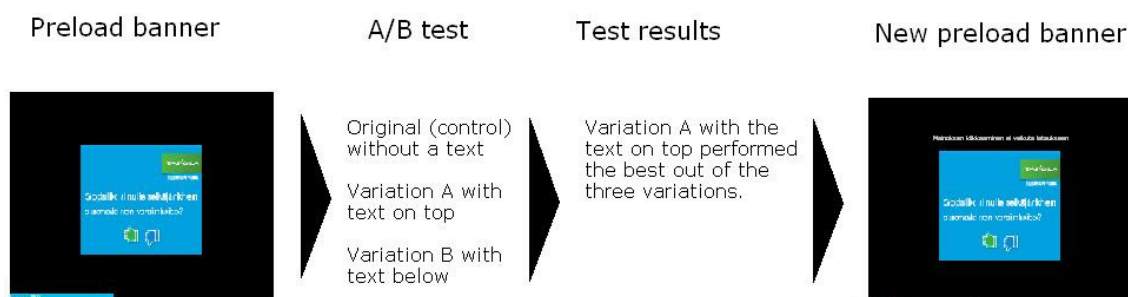


Table 6. Case 1 A/B test progress.

## 6.2 Case 2: Survey Pop-Up Advertisements

### 6.2.1 Results

During the time period of 13.11.2009 to 16.11.2009 the three variations were shown a total of 74,232 times to users. Every variation exceeded 10,000 impressions. The test results are valid.

Figure 29 shows the results for click-through rates of the different variations. The original (control) pop-up (figure 21) was seen by users 24,807 times. It had been clicked 143 times with the click-through rate of 0.58%. As figure 21 shows, the original variation had no perk in it for users to click the pop-up. It only pleaded the user to help Sanoma Entertainment Oy to improve their websites.

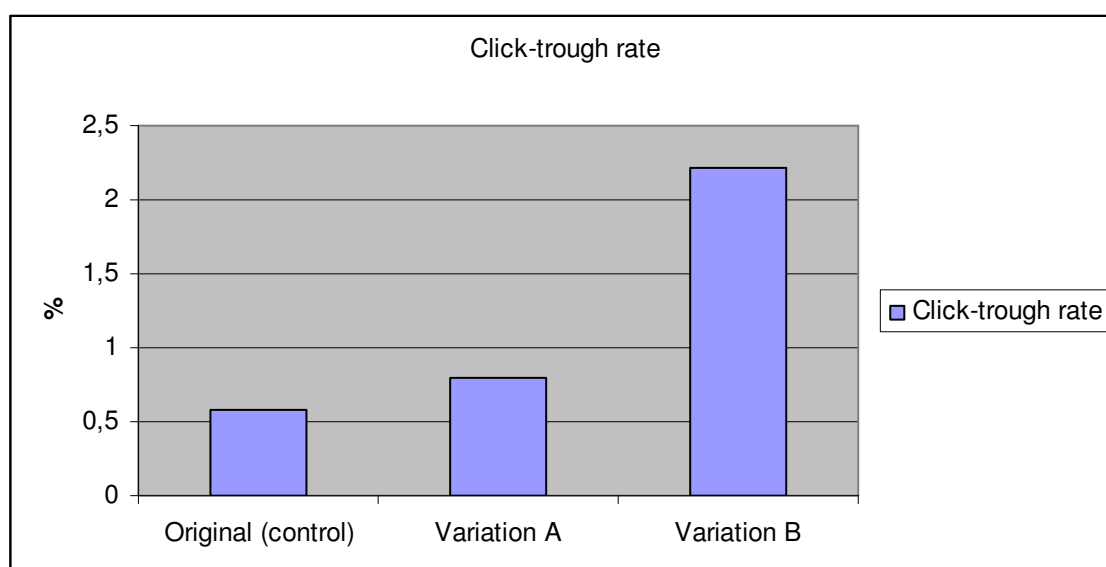


Figure 29. A/B test case 2: test results.

Variation A (figure 22) implied that the survey would only take a minute to fill. It had been seen by users 28,932 times and it had been clicked 232 times. This gives a click-through rate of 0.80%. Although this is an improvement, the chance to beat the original was 88.6% according to Google Website Optimizer results.

“The “chance to beat original” value is the probability that, as the experiment progresses, the given combination’s mean conversion rate will beat that of the original. Here a combination’s performance is only measured against the original, ignoring all other combinations. Among combinations where this probability is high, are good candidates to replace the original combination.” (Google Website Optimizer -website, 2009)

Variation B (figure 23) differed a lot from the original (control) and Variation A. The text focused more on the users chance to win prizes if a person would take the survey. Variation B was shown 20,493 times. It had been clicked 458 times, which gives a click-through rate of 2.22%. According to Google Website Optimizer it had a 98.9% chance of beating the original. Variation B was the best performing variation of the A/B test.

## 6.2.2 Analysis of the results

The results show that Variation B with a chance for the user to win a prize in the header is the winner. The original (control) performed weakest. Pelikone.fi is a website for entertainment and fun. Filling a survey takes a users time and effort which are reduced from the entertainment value of the visit. The fact that the original (control) performed worse than both Variation A and Variation B, came as no surprise.

With Variation A, the observed improvement compared to the original (control) was 38.8%. This result interested Sanoma Entertainment Oy, because there have been many studies on time consumption affecting user behaviour.

### 6.2.2.1 Load time study by Microsoft and Google

In a recent study from Bing and Google, there was a straight correlation between load times and the amount of users as well as user satisfaction. 1000 milliseconds are one second and the study shows that just 200 milliseconds are enough to decrease user satisfaction.

Figure 30: “Server-side delays that slow down page delivery can significantly and (more importantly) permanently affect usage by users with the test. Both Bing and and Google ran similar tests that support this claim.” (Forrest 2009.)

	Distinct Queries/User	Query Refinement	Revenue/User	Any Clicks	Satisfaction	Time to Click (increase in ms)
50m s	-	-	-	-	-	-
200m s	-	-	-	-0.3%	-0.4%	500
500m s	-	-0.6%	-1.2%	-1.0%	-0.9%	1200
1000m s	-0.7%	-0.9%	-2.8%	-1.9%	-1.6%	1900
2000m s	-1.8%	-2.1%	-4.3%	-4.4%	-3.8%	3100

Figure 30. Load time experiment results.  
(Forrest 2009.)

Although the load time for the survey was irrelevant, the fact that time consumption decreases users is not. Sanoma Entertainment Oy wanted to test if mentioning that the survey would not take long to fill had any impact on the click-through rate on the pop-up. In this case, it had a positive impact.

Variation B had the best results in this A/B test. The observed improvement compared to the original (control) was 285.7% and compared to Variation A it was 177.3%. With these results it is no wonder that so many surveys have some kind of prize involved. Since the prize was mentioned in the text below the header, it is clear that the header is read more often. These results imply that the header is the most important part in copywriting.

Jakob Nielsen's eyetracking study seems to agree with this theory:

“Start subheads, paragraphs, and bullet points with information-carrying words that users will notice when scanning down the left side of your content in the final stem of their F-behavior. They'll read the third word on a line much less often than the first two words.” (Nielsen 2006.)

As Variation B had the word “win” as the first word of the pop-up, it seems to have had an impact on the click-through rate.

### 6.2.3 What was achieved

A successful A/B test with Google Website Optimizer was Sanoma Entertainment Oy's main priority. In the test itself they wanted to see how people react on the survey being fast to fill and how the performance increased when there was a prize involved. The survey might not always be short enough so it could be promoted by implying that it only takes a minute to fill. Also a prize cannot always be given to the users when they fill different surveys. The examples here were merely of interest and fairly expected results were gotten out of the A/B test.

The increase in click-through rate with Variation B was very high. There was an idea that it would be bigger than normal but an increase of this magnitude was surprising.

Sanoma Entertainment Oy now has a better understanding on Google Website Optimizer and what has to be done to a webpages architecture in the future if they plan to use Google Website Optimizer more often. The tool itself is better and more thorough than Sanoma Entertainment Oy's previous methods, but changing a webpage's code costs money and the benefit in Pelikone.fi's case does not pay off compared to the regular A/B testing tool, OpenX. With the OpenX all of the features can not be tested however but only the advertisement related ones.



## 7 Future testing

### 7.1 After current results

Sanoma Entertainment Oy will keep testing its websites with A/B tests in the future. Google Website Optimizer could be used in new websites that are made in the future. In those, there will be no extra costs if the architecture of a website is planned to support Google Website Optimizer from the beginning. Next step after A/B testing is the more complicated multivariate test.

### 7.2 AB testing

There are many testing possibilities with A/B tests. The results of the survey pop-ups inspired Sanoma Entertainment Oy to test speeding up their surveys in the future. Prizes cost money but if speeding up surveys and making them more often could help Sanoma Entertainment Oy get better results, it might be a good option.

In previous surveys that have been made much feedback has been gotten from users about the color scheme of Pelikone.fi. It would also be interesting to change some colors on buttons, e.g., to see if they would increase click-through rates. A green button is supposedly better for click-through rate than for example a red button so that could be tested.

The best place to use A/B testing is copywriting. Since Sanoma Entertainment Oy has many webpages with a lot of written content, testing which content gets more response from users is crucial. Right now Sanoma Entertainment Oy is limited in testing different texts on the whole websites. Google Website Optimizer could be the tool to use in copywriting cases.

The next A/B test that will be made is going to be on the front page of Pelikone.fi. A “feature box” is used in the front page, which has a game selected by the administrators of Pelikone.fi. Games that are not featured appear below the feature box in a list with a small thumbnail figure of the game, the games name, how many times the game has been played and the star rating. The featured game is in the feature box with a large thumbnail, description of the game, how many times it has been played and how many stars it has been rated. The second variation of the featured box, are two games that are next to each other with just the game names and the star ratings.

The test will determine which variation is better for overall clicks of the feature box, one game with more information or two games with less information on them. Previously Sanoma

Entertainment Oy has had excellent results with the feature box with only one game. As the two game feature box was introduced, the numbers have been quite random. Also it seems that the two game feature box could have the worse overall performance of the two although it has two games featured instead of just one.

### 7.3 Multivariate testing

Multivariate testing is a form of testing, where many different A/B tests form a single, larger test sceme. Multivariate testing is the next step in improving website performance, since it can be used to test larger parts of the website or even a whole webpage.

“We recommend multivariate testing if you have specific sections on your page that you'd like to optimize.” (Google Website Optimizer -website, 2009)

”Multivariate tests, allow you to test multiple variables -- in this case, sections of a page -- simultaneously. For example, you could identify the headline, image and promo text as parts of your page you would like to improve, and try out three different versions of each one. Website Optimizer would then show users different combinations of those versions (let's say, Headline #2, Image #3, and Promo Text #1) to see what users respond to best. Multivariate tests are more complicated, and typically require higher page traffic.” (Google Adwords - website, 2009)

Figure 31 shows a good example on how different sections can be tested in a multivariate test.

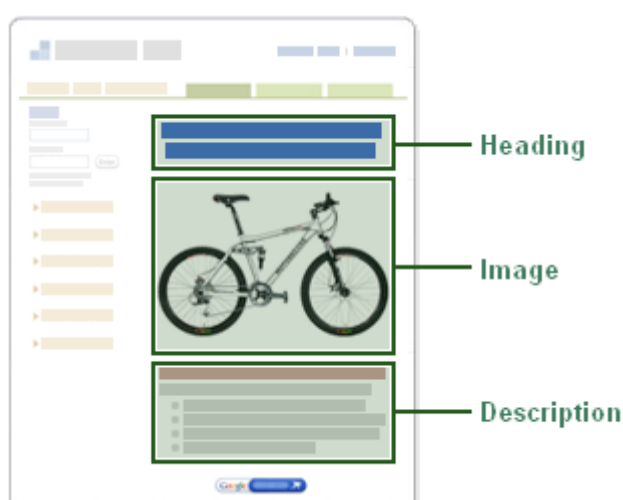


Figure 31  
(Google Website Optimizer -website, 2009)

Multivariate testing also requires more preparational work. Different parts of the tested area need to be edited in multiple forms which requires more manual labour and more studies on which things could work. For example making a picture more appealing is an entirely different case than making a text look more appealing.

Multivariate testing also needs a higher amount of impressions to the users. “Multivariate testing, though, can make it practical to test with many more variables and variations of each, although by increasing the variables and values, the number of visitors required for a conclusive test increases exponentially.” (McGlaughlin 2005.)

As a multivariate test requires more time to be carried out, it might not be a simple few day project. Pelikone.fi for example has about 240,000 weekly users. If a website is recently published and there are not that many users, it is harder to perform multivariate testing although it would be optimal to perform the test in the beginning to make most benefit out of it.

### 7.3.1 Google Website Optimizer

Google Website Optimizer can also be used to make multivariate tests. This option requires more options for the Google Website Optimizer to test.

First the page that has the variations must be selected and verified. After that the conversion page is selected. This first part of the preparations is the same as in making an A/B test. After that however, you need to add the JavaScript codes to each section of the page you wish to test. In A/B testing the JavaScripts were only added to the HTML code on the beginning and end of the code. In multivariate testing the different sections must be found and the JavaScript code added to the different sections individually which makes it also harder for a person with little coding experience to use them.

Otherwise a multivariate test using Google Website Optimizer should be fairly simple and straightforward if the website has been made with testing in mind.

## 8 Conclusions

### 8.1 Tests

A/B testing is not only a great way to improve conversion rates or the performance of a website but also fairly easy and surprisingly exciting. The easiness of the testing depends on the tools and preparations, but I for example can not write code at all and managed to perform

tests with different tools easily. While Google Website Optimizer performed better and was more thorough, it was the more inconvenient program to use when compared to OpenX.

The fact that the results are hard data on users performing different things and reacting differently on various stimulants, was really exciting. By adding just one word on a header, made people respond to it better. This can be used in internet marketing in various ways.

## 8.2 What was achieved?

For example copywriting a text with Jakob Nielsen's F -pattern study in mind will help Sanoma Entertainment Oy better copywriting performance.

The first case about the informational text on the preroll banner (chapter 5.1) helped Sanoma Entertainment Oy to make the preroll more effective to users. The test was successful and the performance of the preroll banners has increased slowly after the informational text was implemented to the preroll banners.

The second case has been taken into consideration for the future. Nothing has been decided yet, but the fact that faster tests might get more participants is an interesting point.

A great deal about the importance of placement on a website has also been learned. Background work with Sanoma Entertainment Oy's graphic designers before the tests helped in understanding how to make the right things stand out on a webpage to improve conversion.

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