The Preference of Turkish Consumers on Converged Products: The Smartphone Example

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Abstract

The smartphone market is facing a huge growth in the last few years. Convenience and personalization are the main features of the Smartphones. Turkey is one of the top ranked countries in Smartphone market growth. Newer generation convergence products (all-in-ones, camera phones) offer consumers higher product performance in terms of quality which is better than their dedicated versions. Another dilemma starts in the minds of consumers about the purchase consideration because of the increased availability to many options. This paper investigates the choice patterns of Turkish university students for product forms (converged vs. dedicated) in different technological performance levels. Mostly the converged product is the choice without any difference in terms of product properties. In the end, managerial implications are addressed and directions for future research are suggested.

Keywords: Smartphone, Converged Product, Dedicated Product, Technology Convergence, Preferences

Türk Tüketicilerin Birleştirilmiş Ürünler Üzerindeki Tercihi: Akıllı Telefon Örneği

Öz

Akıllı telefon pazarında son yıllarda büyük bir büyüme yaşanmaktadır. Kullanım kolaylığı ve kişiselleştirilebilme, akıllı telefonların tercih edilmesinin temel sebeplerini oluşturarak durumdadır. Türkiye, Akıllı Telefon (Smartphone) pazarının büyümektedir. Yeni nesil birleştirilmiş ürünler (hepsinden bir aradaki çiçekler, kameralı telefonlar), tüketiciye, kendi spesifik ürünlerinden daha kaliteli ve daha yüksek ürün performansını sunabilmektedir. Bu şekilde birçok işlevi aynı cihazda sunan ürünlerde olan tüketici ilgisini her geçen gün artmaktadır. Diğer yandan, birleştirilmiş ürünler artık eğitim hizmetleri dahil hayatımızın her alanında spesifik işlevi ürünlerin yerini hızla almaktadır. Bu çalışmada bu gibi durumlar örneklenmiştir Türk üniversite öğrencilerinin farklı teknolojik performans seviyelerinde birleştirilmiş veya spesifik (birleştirilmemis) özellikle ürün formlarıyla olan tercih...
Introduction

The smartphone market is facing a huge growth in the last few years, now reaching a sales projection for 2017 close to 15 million which makes Turkey one of the top ranked countries in smartphone market growth. The year 2012 was the first year that the number of Smartphones sold surpassed the number of personal computers sold in the world. Also, in the same year, the Turkish Smartphone market grew nearly 250%. This increase motivated Turkish government and Turkcell, the biggest GSM Company in Turkey, to make an agreement to produce a totally home-made Smartphone in Turkey.

Why are Smartphones so important and why do they have so high level of sales numbers all around the world, and also in Turkey? Reflecting this reality, the Consumer Electronics Association estimates that the category sales of 'anywhere technologies' accounted for one-third of the $160 billion U.S. consumer electronics market in 2007-2008 and foresee continuous growth for the next years¹.

When we examine the history of computers, it is obvious that after the invention of the computer, the critical mass was exceeded by the invention of personal computers (PCs). This was the result of their personalization ability to better satisfy the daily needs of people, and the same issue is perceived in Smartphones nowadays. Smartphones are not only providing the service of a phone, but they are also providing numerous different services and on the other hand they are highly open for personalization.

For some time now, universities/higher education institutions also have been using technologies such as synchronous videoconferencing (SV), online courses, and other technological innovations to deliver language course instruction for a part of their curriculum by the advances of smart technologies². Flipped classroom technique is also another example³. According to a recent research conducted by ABI research, in 2013 Smartphones continue to steal market share from portable consumer electronics (CE) devices.

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¹ B. Gerson, CEA Forecasts $160 Billion in CE Sales for 2007-08. TWICE: This Week in Consumer Electronics, 22 (24), 2007, p. 56.
Modernization changed the world and the ways of socialization is changing. Hi-tech products, including mobile phones, MP3 players, and digital cameras started to be more essential in the new era, because they connect and combine more items inside different products.

Smartphones are including many features that could stand in separate technological products. Furthermore, a Smartphone is a Kindle reader, pocket foreign language dictionary, alarm-clock, scanner, bank ATM, GPS device, notebook, voice recorder, game console, iPad, paper comics, or even television. This list can be enlarged accordingly with the brand of the Smartphone, but more or less the Smartphones are providing services of many separate products. Also, there are exaggerating ideas stating that Smartphones are replacing human memory, but in this study we will examine Smartphones only in the condition of replacing compact digital cameras in terms of a convergence product.

Likewise the digital cameras destroyed the market for photographic film, the rapid-shift to picture-taking Smartphones has turned into a camera sector which is dominated by the offerings of Smartphone producers. Here, the issue of technology convergence comes to mind. The issue is to understand what affects people’s preference on a dedicated camera or a Smartphone that has the features of a compact digital camera, which is called, in our case, the convergence product. In other words, a convergence product is a digital platform product bundle that physically integrates two or more digital platform technologies into a common product form (E.g., A mobile phone and a digital camera into a camera phone).

Literature Review

There is a huge literature in product bundling which is a prerequisite term to understand what a convergence product is. Bundling may be defined as the sales of two or more separate products in a package (Stremersch & Tellis, 2002). Although the wave of convergence products into the mainstream is seemingly a contemporary phenomenon, the notion behind this product concept dates back to the traditional bundling practices.

Bundled (converged) product manufacturers have made various attempts to integrate different product categories in past, in the name of convenience or versatility. The question of when product bundling should be

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preferred to separate selling is highly examined in the literature in terms of profitability of firms.

Bundling can be profitable even without demand complementarity or scope economies\(^8\). On the other hand, there are some other studies which expanded on this view by showing that mixed bundling can be a profitable way to segment markets\(^9\).

There have been several attempts in history that would be evaluated as the ancestors of product convergence which met with linked limited success. In the AT&T example, the video phone is positioned as a revolution for business and consumer communications, but ended as a failure\(^10\). Furthermore, the multifunctional machines (integrated printer, copier, scanner and fax functions) could never go beyond the niche segment of small-office/home-office customers. These failures were mainly caused because of the underperforming perception of customers on all-in-one products\(^11\).

Besides, renewed application of product bundling in the digital domain may be named as convergence product, and it is one of the fastest-growing product categories in consumer technology. The days of two distinct commercial and consumer markets in digital industry are fading fast as vendors react to the convergence of people’s personal and professional lives.

Smartphones become the main multifunctional devices that people can satisfy their all technological needs. There is a decrease in sales of digital compact cameras. Smartphones are the cause for this decrease. Converged products effect the sales of the dedicated products.

**Hypotheses**

In this study we examine the following hypotheses about the choices of Turkish consumers when they are presented with the option of a stand-alone product and a converged product. The hypotheses are very similar to the ones used in the Han et al.\(^12\) study; however the megapixel conditions are improved according the advances in technology. That study included 1 and 5 megapixel conditions for the experimental design. We changed these to 8 and 13 megapixels respectively. We also introduced the technological feature of optical zoom expressed as 3x and 10x. Besides, that study also included a preannouncement effect, as the technology levels increase so rapidly now and since on the basis of megapixels there is a steady state whereby additional


megapixels are not considered as improving image quality, the preannouncement condition was not tested.

H1a: Turkish consumers prefer the converged product option over its corresponding dedicated counterpart at low levels (8-megapixel) of technological performance for a common given feature.

H1b: Turkish consumers prefer the dedicated product option over its corresponding converged counterpart at high levels (13-megapixel) of technological performance for a common given feature.

H2a: Turkish consumers prefer the converged product option over its corresponding dedicated counterpart at low levels (3x-zoom) of technological performance for a common given feature.

H2b: Turkish consumers prefer the dedicated product option over its corresponding converged counterpart at high levels (10x-zoom) of technological performance for a common given feature.

Model and Methodology

The study investigated the product-form choice patterns with a closer examination by using the buying hierarchy framework\(^{13}\) (consisting of performance and convenience dimensions). Sample-size was planned as a minimum of 80 Turkish undergraduate business school students who chose to participate in the survey in exchange for course credit. Many studies assume the scale builder to know the research field for constructing an instrument which would cover the main theoretical constructs good enough which will also be useful for other studies\(^{14}\). Students have received a questionnaire containing information about the two options of product forms. The first option consisted of two dedicated products: a digital camera and a mobile phone whereas the second option was a convergence product: a camera phone that includes both the functions of a mobile phone and a digital camera in a single physical unit.

The order of the product form options was counterbalanced. The task of the participants was to indicate which of the two product forms they would choose when they are presented with the scenario. The between subjects experimental design included a low-performance condition and a high-performance condition.

Product-form choice between the two options was the dependent variable of the study. The 8-megapixel resolution level was given in both the converged and the dedicated product-form options for low quality choice. On the other hand 13-megapixel level was set for the high condition. These levels are the features of the most used products of Samsung and Apple, the main producers of Smartphones, by Turkish university students.

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The price levels were the same for either product-form options. 800 TL was set for both an 8-megapixel camera phone and an 8-megapixel digital camera and a mobile phone. This price level is based on the real prices of mostly preferred Smartphones in Turkey. The main customers of the Smartphone market are the young generation which was examined by the participation of the university students to the questionnaires. Also, the price-level for 13-megapixel case is determined as 1100 TL, by the same studies.

Also, in literature one study\(^\text{15}\) demonstrate that a preannouncement of future technology can affect consumer preferences. Pre-announcement strategy is used in literature many times to address whether and how the formation of future technological expectation is likely to affect product-form preferences\(^\text{16}\). The same paper also states that in general, firms make preannouncements about upcoming new products/technologies to consumers often with intent to signal preemption against new entry. For reasons explained earlier we chose not to include this condition in our study. But instead chose to include an optical zoom feature as an extra dimension.

### Results

The survey is constructed and provided for the students of two independent universities to measure their demand for the converged products. University students are the core consumers of social media and smartphones\(^\text{17}\). The survey included 17 questions which were about smart phone, camera, expectations and 4 preference questions about converged and stand-alone products. 100 questionnaires were prepared and the 83 of them were responded. So, the response rate is %83 which is a good ratio for this study.

There is a high variety in terms of the brands of the smartphones which were being used by the responders. IPhone is the leading brand by 43 users and Samsung is the next brand by 14 users. There are 7 other brands including HTC, Asus, and Nokia. Another point is about the average price paid to phone. This average value result is 2076 TL by a min value of 400 TL by a max value of 4000 TL. The results about the current level of Megapixels have an average value of 11.3 MP, a min value of 4 MP and a max value of 21 MP. 8MP is the most frequent and 12MP is the follower.

On the other hand, the questionnaire also gathered data about the expected values. Expected MP of smartphone included the average result of 14.41 MP from an interval of 6 MP to 40 MP. Expected MP of a dedicated camera was 26.69 MP from an interval of 1-122 MP. Besides, expected optical zoom of a smartphone was 6.52 MP from an interval of 1 – 20 MP. Therefore,


expected optical zoom of a dedicated camera was 18,23 MP from an interval of 3 – 120 MP. Then, 4 Questions asked preference of separate or converged products when the bundles are equivalently priced and of all 4 options more than 80% chose the converged product regardless of the level of technology.

The most important questions of the 17 questions we presented were the four questions on whether the respondents would prefer the converged product when presented with equally expensive choices where one choice contained a digital camera and a phone and the other option contained a smartphone with camera functionality. Of all the four options presented at least 83% of the respondents chose the converged option regardless of the level of megapixels or the optical zoom. The percentage of students preferring the converged option for the 8MP, 13MP, 3x zoom and 10x zoom technological levels respectively were 87,95%, 93,98%, 89,16%, and 83,13%.

The hypotheses H1a, H1b, H2a and H1b are all rejected with a p-value very close to 0. Consumers choose the converged product no matter what the technological level is and there is also no significant difference between the technological levels with respect to the choice of converged option. To be more specific between the 8MP and 13 MP levels the Chi-Square test gives a p-value of 0,175864 and the hypothesis that choice of converged option depends on the level of technology is rejected. The summary frequencies are presented in Table 1.

Similarly when it comes to the optical zoom level the Chi-Square test gives a p-value of 0,261334 and the hypothesis that choice of converged option depends on the level of technology is rejected. The summary frequencies are presented in Table 2.

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<th>Table 1: Choice of converged product and megapixel level</th>
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Conclusions and Future Directions

Our main conclusion is that the Turkish consumers (or better stated the young Turkish consumers represented by the sample we used in our study) prefer converged products no matter what the technological level is. The levels of technology are megapixels and optical zoom levels. Especially most consumers are not even aware of the optical zoom levels in smart phones or digital cameras. Older and more experienced users may be more sensitive on technological features like digital versus optical zoom. The findings in the study revealed that the consumers preferred the converged option in low technological level and the dedicated option in the higher technological level, by a very extreme margin. Our findings are contrary to this. It may be a condition related to Turkish consumers in general or the fact that the megapixel levels in the previous study were so low that the picture quality mattered a lot between the options. In our study we used the 8 and 13 MP levels but most people cannot discriminate between the quality of picture when seen on a laptop screen or camera screen.

Future directions for this study should include a larger sample and also choose a different type of convergence rather than the smart phone camera convergence. This converged product example may be a tablet – PC converged product. Therefore, our study may be examined in another country for understanding the customer preference of a specific country. Another contribution may be conducting the survey a more representative sample rather than university students. Since the age groups is limited to 20 year olds experience of older consumers are overlooked. Elaborating on various technological levels (megapixels, zoom), analyzing socioeconomic variables influence choice of converged product, and adding a preannouncement of new technology are also advises for future studies. Several studies have also examined the relationship between product choice and brand name, the effect of brand name may also be very important in the answers respondents give to the questions we presented. Future studies may control for the brand names of the converged products or stand-alone ones.

REFERENCES


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Özet


Bu çalışmada, ana temalı ayrı işlevleri olan cihazların ortak bir cihazda buluşturulması durumunda bu cihazın müşteri tarafında tercih edilebileceği incelenmiştir. Tüketiciler, bazı ürünlerin birleştirildiğinde asıl amaçları kısıtlı, başka bir deyişle kalitelerinin düşüğünü düşünmektedirler. Oysa, yeni nesil birleştirilmiş ürünler (hepsi bir arada cihazlar, kameralı telefonlar), tüketiciler, kendi spesifik ürünlerinden daha kaliteli ve daha yüksek ürün performansını sunabilmektedir. Bu şekilde birçok işlevli telefon cihazları sonuca varan ürünler olarak tüketici ilgisini her geçen gün artırmaktadır.

Diğer yandan, birleştirilmiş ürünler artık eğitim hizmetleri dahil hayatımızın her alanında spesifik işlevli ürünlerin yerini hızla almakta. Bu çalışmada bu gibi durumlar örneklendirilmiştir ve Türk üniversite öğrencilerinin farklı teknolojik performans seviyelerinde birleştirilmiş veya spesifik birleştirilmiş tablet ve bilgisayar ürünlerinin tercih edilmesi araştırılmıştır. Ayrıca, bu tip birleştirilmiş ürünlerin hayatımıza etkilerine değinilmiştir.


Bu çalışmanın sonuçları ve önerileri işığında yapılacak olan etkinliklerin, bu tip bir tercihin daha yüksek bir katılımcı düzeyi ile dejişik tüketici gruplarına kapsayacak şekilde yapılması önerilmektedir. Ayrıca bu çalışmanın tercihlerine diğer ülkelerde nasıl bir sonuç verileceği de üzerinde çalışılmasında uygun bir konu olarak değerlendirilebilir.