Learning about innovations: learning styles and characteristics

Jonathan Riis
International Marketing program
Halmstad University, Halmstad, Sweden

Abstract
Purpose - The purpose of this paper is to explore what people think is the best way to learn about innovations by different learning styles and characteristics. The paper will give answers to which learning style that people think is the best way to use when learning about innovation.

Methodology - The data for this study were collected via online-surveys and through paper surveys. A total of 224 usable responses were obtained. The method will consist of primary data, which will be collected through surveys. Secondary research will be presented in the empire which will be retrieved from databases like Scopus, Diva, Emerald, Web of Science and Google Scholar.

Implications/findings - Of the four different learning styles investigated in this study the result revealed that people best learn about innovations from the tactile/kinaesthetic learning style. The least pedagogic method to learn about innovations was the visual/verbal learning style.

Paper type - Research paper

Keywords - Innovation, learning, styles, tactile, kinaesthetic, characteristics.

Introduction
How do people learn best about innovations? This research will investigate how people best learn about innovations. There are different types of learning about innovations but what is the most commonly used one? This research will focus on five different types of learning about new innovations. There will be five alternatives in the questionnaire that will answer how people best learn about innovations.
RQ: Which learning style do people think is the best way to learn about innovations?

When consumers think of innovations or a new product they always have a risk perception. When doing a buying decision there is always a risk involved (Izard, 2010). This research is important for companies because it is of utmost importance that their innovations are easy to learn for the user (Hall & Khan, 2003). If companies know which learning methods people thinks is the best way to learn about new innovations, they can move their information to these platforms.

This research will answer the research question “what do people think is the best way to learn about innovation?” The purpose with the research paper is to find out which method people best learn about innovations. The results of this paper can be used as further research in the area of learning and innovations.

The method is the first part of this paper and it will give an explanation of the chosen method and how the method is being used. The following chapter will be empire which will consist of primary and secondary research and data. In the last part of this paper there will be analysis, conclusion, implications and suggestions for further studies.

Method
This research will investigate what people think is the best way to learn about innovations. The method used in this paper is primary research with primary data. Primary data is data that is collected from a field under control and supervision. The collected data used in this method will be classified into information and standardized so it can be put in a computer. The data is collected to answer the question in this research (Jacobsen, 2002). Secondary research will be used in the empirical part of the subject to back up the primary results.

Choosing method
When choosing method there is two types of choices according to Jacobsen (2011), describing- and explanatory-methods. To know which method that’s best for this study it is important to know what the purpose is with the study. When choosing a describing method, you want to create knowledge about how something really is in reality and not how its perceived to be. An explanatory method on the other hand aims on why reality looks like it does (Jacobsen 2011). This study emanated from a describing method because it will investigate what way people think is the best to learn can learn about innovations, which will create knowledge on how something really is.
This research will use a quantitative method for collecting data. Jacobsen (2011) tells us how to collect the data, how to choose respondents, how we should analyse the data and what quality the results will have. Jacobsen (2011) further says that a simple random sample is as a lottery and if the sample comprises a smaller proportion than 10% of the population it is largely indifferent to how large the population is. In this case the sample size is less than 10% of the population. The determination of sample size is calculated on how many people their live in Sweden and with the confidence level of 95% with an interval of 4%. In this case there should be at least 600 answers, which implicate that this study is under the recommended size. This is a bias in this study and needs to be taken under consideration.

The purpose with choosing a primary research is to get new data about the subject. The unit of analysis will be groups. The time horizon for the research survey will be cross-sectional and reaches over a week’s time. The study setting for this survey will be a non-contrived as the respondent answer the questions in a natural environment. To gather the information in this papers survey, the design of the form needs to have given answers (Jacobsen, 2011). Because this research will investigate the general opinion on how people best will learn about innovations the form will have a scale from 1-5, there 1 - strongly disagree and 5 - strongly agree. The questionnaire is anonymous so that the researcher interference is as minimal as it can be.

**Inductive and Deductive methods**

According to Jacobsen (2011) there are two ways to collect data: inductive- and deductive method. The **inductive** method is when you take empiric data and moves on to theory. This mean that from the beginning of the paper there is no knowledge of the investigated area of the author. Therefore, the authors personal preferences do not affect the study to the same extent. The **deductive** method is when you take theory and moves on to empiricism. This means that the author forges expectations of how the world looks and then investigate if the expectations match with the reality. The risk with this method are that the authors personal preferences can direct the result towards his own preferences. This paper emanated from an inductive method. The risk (biases) that personal preferences could affect the result of this paper is known. With this in mind personal preferences have exceedingly been taken away in the survey and the conclusion of this paper.
Population and questionnaire
When choosing respondents, it’s important to do a selection of a few that are represented for all we want to express an opinion on (Jacobsen, 2011). Therefore, the form for this survey will be uploaded online on different sites so as many different people as possible can answer the form. The questionnaire will also be printed on paper so the bias that only people that uses computers will answer the questionnaire decreases.

When analysing the data from the form it is good to do a simple analysis about single issues and try to see if there is a covariance between different questions (Jacobsen, 2011). When choosing questions for the questionnaire it’s important to go from ambiguous theoretical concepts to more concrete, operational concepts (Jacobsen, 2011). For this survey the following description will be included (in Swedish):

How do you best learn about a new innovation? - For e.g., a new product that you have not used before.

The form will have the five following questions:
1. I learn about innovations from reading the accompanying user manual.
2. I learn about innovations from using the innovation myself.
3. I learn about innovations from videos and clips on the internet for e.g. YouTube.
4. I learn about innovations from friends and family.
5. I learn about innovations from reading internet forums.

Literature review
Innovation is defined as a new idea, method or device; a novelty according to Kuczmarksi (2003). He further describes innovation with saying it’s a mind-set, a pervasive attitude, or a way of thinking focused beyond the present into the future vision. Costello & Prohaska tells us what exactly constitutes innovation. There are three different concepts that generally gets confused with each other and that are innovation, improvement and invention. **Innovation** is when doing something different, **improvement** on the other hand is when you do something better and **invention** is the act of creation, an idea or a method.

Christensen (1997) uses the term disruptive- and sustaining-technologies. He defines sustaining technologies as technology that allows us to do something a little better than before. For e.g. a car that is more fuel efficient, whereas disruptive technologies prompt new forms of practice, e.g. the invention of the car. Christensen, Horn, & Johnson (2008) further defined the description of disruption as:
“The process by which an innovation transforms a market whose services or products are complicated and expensive into one where simplicity, convenience, accessibility and affordability characterize the industry”

When consumers think of innovations or new products they always have a risk perception. When doing a buying decision there is always a risk involved (Izard, 2010). According to Izard (2010; Lowenstein, Weber, Hsee, & Welch (2001) there is two types of feeling states in risk that are crucial for consumers that are emotion and risk perception. In their research they proposed that emotion influences the risk perception in a cognitive way. Schwarz (2011) explains this further and says that individuals are treating emotions as if it were information when they are doing a risk assessment on a situation like a new innovation.

**Different learning styles**

Bjerg (2000) says that learning often is associated with development. People learn from an event or a certain activity. Sproles & Sproles (1990) says that processes of consuming are based on a process of learning. Hall & Khan (2003) says that new technology only can be realized when and if it is widely diffused and used. Diffusion results from a series of the individual’s decisions to begin using the new technology and decisions which are often the result of a comparison of the uncertain benefits of the new innovation. Hall & Khan (2003) continues and says that an innovation needs to be easy to use and that the user needs to learn how the innovation works fast. They also say that technological change (new innovations) and the understanding of these can be slow and that this comes from that consumer do not understand the innovations benefits.

Rolfe & Cheek (2012) says that a learning style can be seen as the characteristics in which a person is learning in. The difference in people shape how they learn, some need to reflect and some need to practise and see to make it a skill.

Rolfe & Cheek (2012) talks about four different learning models that are:

1. Visual/verbal (read/write) learning style
3. Tactile/kinaesthetic learning style
4. Auditory/verbal learning style

**Visual/verbal** learners learn best from visual information in the form of written language. This type of learner can see information in their mind when trying to remember something. The **visual/non-verbal** learners learn most efficient when they are presented with visual information as a picture or an illustration. This type of learner like visual aids and pictures to learn
best. **Tactile/kinaesthetic** learners learn best from a” hands-on style” which means that they best learn from doing a thing in practise, a good way for this type of learner is practical demonstrations. The **auditory/verbal** learner on the other hand learns best when the information is presented in spoken language. They gain most information from discussions and from listening from what other has to say (Rolfe & Cheek, 2012).

**Primary data**

The primary data is collected from 224 respondents that have answered the five questions in the questionnaire. The five following figures will show the collected data in numbers. How many respondents that answered on each scale.

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**Figure 1 - User manual**

Figure 1 shows how many of the respondents that learn innovations by reading the accompanying user manual. Of the 224 answers only 8 thought it was a good way to learn about innovations. This question mainly focused on the Visual/verbal (read/write) learning style that says that some people best learn from the written language.

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**Figure 2 - Using the innovation**


Figure 2 shows how many of the respondents that learn innovations by using the innovation. 192 of the 224 answers gave this method of learning a 4 or a 5 on the scale. And only 8 respondents thought it was a bad way to learn. This question was based on the tactile/kinaesthetic learning style which is a “hands-on” style that says that people learn from doing a thing in practise.

![Figure 2 - Method of Learning](image)

(Figure 3 - Video clips on the internet)

Figure 3 shows if the respondents best learn about innovations from watching videos and clips on the internet. This figure had answers that mostly varieties from a 3-5 on the scale. This question was based on the visual/non-verbal (pictorial) learning style to see if people learn best from visual information.

![Figure 3 - Learning from Videos](image)

(Figure 4 - Friends and family)

Figure 4 shows if the respondents best learn about innovations from friends and family. The most commonly choose on the scale was a 4. This question was based on the auditory/verbal learning style that means that some people learn best from listening.

![Figure 4 - Learning from Friends and Family](image)
Figure 5 has the most varied answers. 34.4% or 77 of the respondents gave this a 3 on the scale and it was almost as many of the respondents that gave this method a 1-2 on the scale as it were respondents that gave it a 4-5 on the scale. This question was also based on the visual/verbal (read/write) learning style, the reason why this style was measured twice was because it should measure two different information types to have as high proliferation among the respondents as possible.

Figure 6 shows the average of points that the different questions got on the 1-5 scale. Where 1-2 is not a good way to learn about innovations, 3 is neutral and scores over 3 are an effective way to learn about innovations.

Analysis
The analysis will discuss the research question that are based on the primary data and supported by the secondary data. The research question is:
RQ: Which learning style do people think is the best way to learn about innovations?

The research resulted in 224 answers where every answer was useful. A bias in this research is that the survey only has 224 respondents, which will be a margin of error. There should at least be 600 sample size needed to have a confidence level of 91%-99%. This means that there can be errors in the research data. Another bias can be that the form only consists of mostly online answers, which means that the sample only have mostly been answered by people that are active in the online space. Another biases are that this research does not take in account what gender or age the respondents have. This can distort this research because of variables like age, that can have an impact on how you learn about innovations. There can also be different learning styles that are used that differences between gender. A bias in this paper could also be that personal preferences could have an impact of the results. The author of this paper have tried to have minimal interference with the results so it could be as correct as possible.

Kuczmarksi (2003) defines innovation as a new idea, method or device and says that it’s a mind-set, a pervasive attitude or just a way of thinking focused beyond the present into the future. Costello & Prohaska further defines innovation as to when doing something different. They also note two other concepts that often get confused with innovation; improvement and invention. Improvement is when doing something better and invention is the act of creation, these two concepts should not be confused with innovation. Christensen (1997) are on the same track and he uses the term disruptive- and sustaining-technologies. Sustaining technologies allows us to do something better than before whereas disruptive technologies prompt a new form of practice and this is often an innovation. Christensen, Horn, & Johnson (2008) tells us more about the description of disruption and says that it is a process where an innovation transforms a market whose services and/or products are complicated and/or expensive into a market of simplicity, convenience, easy accessable and affordable. All the authors that has defined innovation in the literature review has been on the same track, this can be interpreted as innovation is clearly explained.

The different learning styles and characteristics that are measured in this research are made by (Rolfe & Cheek, 2012). According to Rolfe & Cheek (2012) learning styles can be seen as characteristics in which a person is learning in. Different people learn by different ways. Knowing this they made the four type of learning styles that are mostly common and this models is used in this research to measure the learning styles people uses towards innovations.
The primary data showed that learning from reading the manual was the least commonly way of learning about innovations by the respondents. 62.5% or 140 of the respondents gave this method of learning about innovations a 1 or 2 on the scale. The low score can be connected to Hall & Khan (2003) that says that the user needs to learn how the innovations works fast. This learning method was based on Rolfe & Cheek (2012) visual/verbal learning style which represents the style where the learner learns best from a presentation of visual information in the form of written language. The learner who uses this type of characteristics to learn can see the information in their mind when their trying to remember something.

The method of learning about innovations from using the innovation was the best learning techniques to learn according to the primary data. 85.8% or 192 of the respondents gave this method of learning about innovations a 4-5 on the scale. This can be connected to Hall & Khan (2003) research that says that the user needs to learn how the innovation works fast. This can also be linked to Sproles & Sproles (1990) that says that processes of consuming are based on a process of learning. This question was based on Rolfe & Cheek (2012) the tactile/kinaesthetic learning style which is a “hands-on” style that says that people learn from doing a thing in practise.

The method of learning innovations by watching videos and clips was the method that had most difference in responses. 55.4% or 124 of the respondents gave this method a 4-5 on the scale. 32.1% or 72 of the respondents gave a 3 on the scale and 12.5% or 28 of the respondents gave this method a 1-2 on the scale. This question was based on Rolfe & Cheek (2012) the visual/non-verbal (pictorial) learning style which means that the learner learns most efficient when presented with visual information as a picture or an illustration. This type of learner like to see the information in visual aids and pictures to remember it.

The method of learning about innovations from friends and family was according to the primary data a method that 62.5% or 140 of the respondents gave a 4-5 value on the scale. This question was based on Rolfe & Cheek (2012) the auditory/verbal learning style that means that the learner learns best from information presented in spoken language. This type of learner gains most information from being active in discussions and from listening from what other has to say about a subject.
The method of learning about innovations from reading internet forums was according to the primary data a method that had some differences in the respondents’ answers. 33.9% or 76 of the respondents gave this a 1-2 on the scale and 28.6% or 64 of the respondents gave a 4-5 on the scale. This question was also based on the visual/verbal (read/write) learning style (Rolfe & Cheek, 2012).

**Conclusion**
In the questionnaire in this research there was a total of 224 answers. The data retrieved from the survey is presented in a comparison in (Figure 6). In the comparison of the points scored in the different methods being used, there is a clear answer to which way people best learn about innovations. The score of 1-2 means that the method not is a good way to learn according to the answers. The score of 3 is neutral – which means that the respondent doesn’t think it is a good- or bad way to learn about innovation. Scores that are over 3 means that people think it’s a good way to learn about innovation.

The best learning style to learn about innovations is by using the innovation. The next best way is watching video clips about the innovation or being informed about the innovation from family and friends. The method of learning innovation thru reading internet forums and discussions was according to the respondents answers not a good way to learn. The poorest learning style to learn about innovations was by reading the instructions/manual. The two methods that measured the visual/verbal (read/write) learning style had the lowest scores. This indicates that this learning style was the least effective way to learn about innovations. The most useful way for people to learn about innovations is to use the innovation themselves. By using the innovation in practise the conclusion of this result could be that people best learn about innovations from the tactile/kinaesthetic learning style.

**Implications**
According to this study the best learning style was to learn about innovations by using the innovation, people tended to learn innovation best from the tactile/kinaesthetic learning style. The most ineffective way to learn about innovation was the visual/verbal (read/write) learning style.

**Further studies**
Further studies could be done in this area and more questions and respondents in the questionnaire could give more detailed data. Further subjects could be:
“Does people learn innovations faster now than before?”
“Which method of learning innovations is used in different ages?”
“Could the tactile/kinaesthetic learning style be used to enhance peoples learning?”
“Which characteristics is mostly common when learning overall?”
References


