

## **Preliminary Study of Key Success Factors for Effective Knowledge Transfer in SMEs Batik (Case Study SMEs Batik in Solo)**

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### **Abstract**

As part of the handicraft sub-sector in the creative industries, batik industry faced a similar problem with others industry in that subsectors. Basically, the problems that occurred in these sub-sectors caused by the process of knowledge transfer between educational institutions, participants in the batik industry, and the society has not been run well, so mastery of knowledge in that industry is still very weak. In the context of competitive advantages, knowledgeable is the important factor for increasing the competitive advantages. Firms or organizations will have competitive advantages if they knowledgeable. They can not be able to produce products and services without knowledge. Explicit or tacit knowledge have to be transferred from transfer agent to transfer recipient for the existing of the knowledge. Based on that, this study aim to to explore some key success factors that influence the effectiveness of knowledge transfer in SMEs batik and develop a conceptual model to support the most effective knowledge transfer in SMEs batik which can increase the competitive advantage of that SMEs. Subject of this research is SMEs batik in Solo. The important results of this preliminary study indicate that not all important factors for success of knowledge transfer in SMEs can work well in SMEs Batik Solo. According to the batik makers (craftmen), knowledge transfer is not working effectively because it only temporarily training with no follow-up.

### **Keywords**

SMEs batik, transfer agent, transfer recipient, transfer media, transfer object, effectiveness of knowledge transfer

### **1. Introduction**

Knowledge is an experience, textual information, and opinions of experts in the field. In general, knowledge knowledge can be grouped into two, namely tacit knowledge and explicit knowledge. Each of them require different management strategies. Tacit knowledge is subjective and experience based knowledge that can not be expressed in words, sentences, numbers or formulas, often because it is context specific. This also includes cognitive skills such as beliefs, images, intuition and mental models as well as technical skills such as craft and knowhow. Explicit knowledge is objective and rational knowledge that can be expressed in words, sentences, numbers or formulas (context free). It includes theoretical approaches, problem solving, manuals and databases [4]. Knowledge is an important asset that allows obtaining and retaining competitive advantage. For this reason,

knowledge sharing has become a strategic priority for most organizations. Knowledge sharing is extremely important because organizations have to continually learn and innovate to remain competitive [2]. Besides doing a knowledge sharing, the organization can also acquire knowledge from other sources through knowledge transfer. Knowledge transfer requires the willingness the willingness of a group or an individual to work with each others. Knowledge transfer is about connection not collection, and that connection ultimately depends on choice made by individuals. It is worth noting that this form of transfer in particular may well be a ‘two-way process’ between the transfer agent and transfer recipient. Knowledge transfer is also an increasingly popular term in the literature as writers attempt to highlight the human aspect of knowledge management.

As part of the handicraft sub-sector in the creative industries, batik industry faced a similar problem with others industry in that subsectors. Basically, the problems that occurred in these sub-sectors caused by the process of knowledge transfer between transfer agent (educational institutions, government, and other institutional problems) and transfer recipient (participants in the batik industry and the general public) has not been run well. In line with that statement, Soetiarso (2006) confirmed that one of the causes of low performance of SMEs in Indonesia compared with the performance of SMEs in developed countries, is the low of development and mastery of science and technology by SMEs in Indonesia. In fact, in the era of free trade and globalization of world economy, science and technology along with human resources are the two dominant factors in determining the level of competitiveness of a product or company. In this era, SMEs can survive in both domestic and global markets, if only they can run their production in efficiency manner and they can produce high quality of product [16].

There are some barrier that faced by SMEs batik in the process of knowledge transfer, i.e lack of infrastructure to support knowledge transfer process, lack of awareness and willingness of the entrepreneurs to applying a new science and technology in their bussiness, lack of access and the limited information about the sources of specific technology and knowledge, and R & D as a transfer agent is not optimal in producing specific things that needed by SMEs. Based on that, this study aim to to explore some key success factors that influence the effectiveness of knowledge transfer in SMEs batik and develop a conceptual model to support the most effective knowledge transfer in SMEs batik which can increase the competitive advantage of that SMEs.

## **2. Literature review**

### **2.1. Knowledge**

Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organisations, it often becomes embedded not only in documents or repositories but also in organisational routines, processes, practices, and norms [7].

Knowledge is classified into two types as tacit and explicit. Explicit knowledge is the type of knowledge that can be easily documented and shaped . It can be created, written down, transferred and followed among the organizational units verbally or through computer programs, patents, diagrams and information technologies . Tacit knowledge is what embedded in the mind , can be expressed through ability applications; is transferred in form of learning by doing and learning by watching [12].

### **2.2. Knowledge Transfer**

Knowledge transfer is nominally concerned with the process of moving useful information from one individual to another person[9]. One is the ability to transfer knowledge quickly and effectively from one part of the organization to others. If knowledge is just a repository of information in a database or in someone’s private knowledge domain, then the organization cannot use it to learn. For example, if mistakes or failures are documented but not made known to others, then knowledge of them is not being used to learn how to avoid them in the future [7].The ability to transfer knowledge across an organization has been found to contribute to organizational performance [2]. Knowledge transfer requires the willingness of a group or an individual to work with each others. Without sharing, it is almost impossible for knowledge to be transferred to other person [8]. Knowledge transfer is about identifying (accessible) knowledge that already exists, acquiring it and subsequently applying this knowledge to develop new ideas or enhance the existing ideas to make a process/action faster, better or safer than they would have otherwise been. So, basically knowledge transfer is not only about exploiting accessible resources, i.e. knowledge, but also about how to acquire and absorb it well to make things more efficient and effective [11].

### 2.3. Model of Knowledge Transfer

There are three model of knowledge transfer. First, model of knowledge transfer from Bozeman (2000). The model is not mentioned directly by Bozeman as a model of knowledge transfer, but he is mentioned this model as a model of technology transfer. In his research, Bozeman (2000) suggests that there are five broad dimensions which is determine the effectiveness of technology transfer, i.e characteristics of the transfer agent, characteristics of the transfer media, characteristics of the transfer object, the demand environment, and characteristics of the transfer recipient [5]. Contingent effectiveness model of technology transfer can see at Figure 1 below :

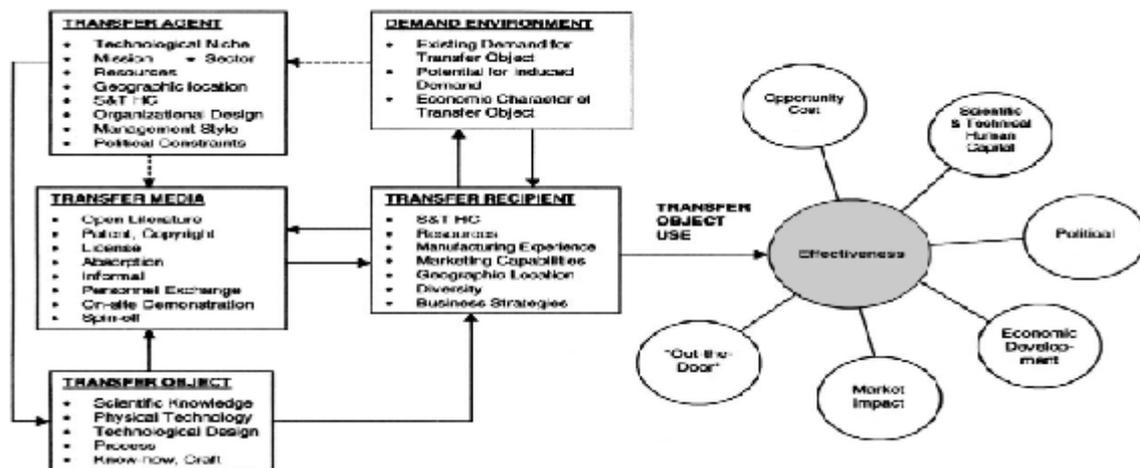


Figure 1 : Contingent effectiveness model of technology transfer

Second model of knowledge transfer is from Ngoc (2005). Ngoc (2005) explores the key factors and examines their relationships with the knowledge transfer within an organization. The results of the survey on 104 respondents in several IT firms in Hanoi revealed that a communal culture (high sociability and high solidarity), social interaction, transformational leadership, and application of communication technologies, are significantly correlated with the level of knowledge transfer among organizational members. In addition, it is noted that individual absorptive capacity, relationship closeness, and interactive organizational communication also have significant impact on the process of intra-firm knowledge transfer [13].

Third model of technology transfer is from Gouza (2006). In his research, Gouza (2006) determines which factors promote or impede the knowledge transfer within university spin off. Result of his research indicate that knowledge transfer within spin off have positively correlation with the disposition of the source (motivation, resistance, reliability), the capacity of learning of the recipient (motivation, absorptive capacity), strong ties between the recipient (trust, organisational distance, geographical distance) and the source, the richness of transmission channels (communication face to face and ICT), and have negatively correlation with causal ambiguity (codification, tacitness, complexity) [9].

Fourth model of knowledge transfer is from Branchos et.al (2007). In theirs research, Branchos et.al (2007) conduct an investigation into knowledge sharing mechanism by empirically testing the role that context plays in the transfer of actionable knowledge and, in turn, for innovation. The result of the survey on 72 bussiness units of companies belonging to the ICT, pharmaceutical and food industries in Greece revealed that contextual factors such as trust, motivation to transfer knowledge, management support and learning orientation are crucial for fostering knowledge transfer and innovation[6].

### 3. Methodology

Research methods in this study begin from define the problem, literature review, develop conceptual model and identification variable, data collection by conduct a focus group discussion (FGD) in Solo, doing some analysis, and get some conclusion from this preliminary research. Research method of this study can be seen as Figure 2.

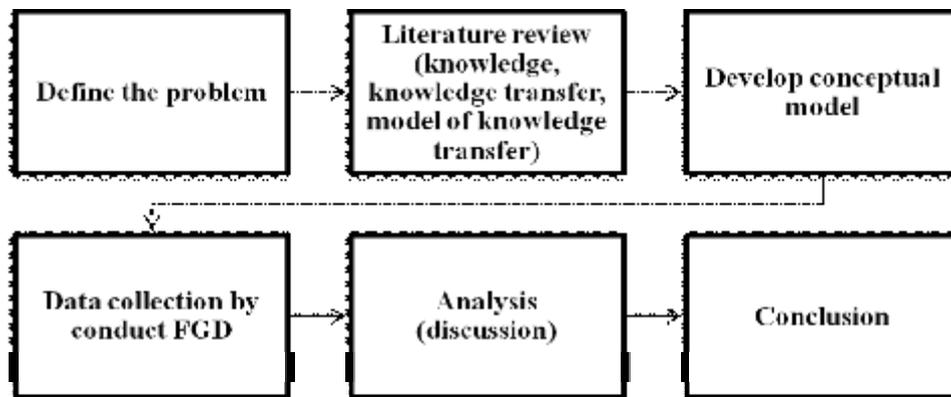


Figure 2 : Methodology research

FGD conducted in the solo was attended by a number of stakeholders from SMEs batik, i.e batik makers (craftsmen), observers batik, educational institutions, and society who care about batik. In this FGD, all parties are asked to submit their opinions about the phenomenon that occurs in the transfer of knowledge in SMEs batik.

### 3.1. Variable Identification and Model Development

Based on model of technology transfer from Bozeman (2000), Ngoc (2005), Gauza (2006), and some research which have been conducted by researcher before, this study try to develop some indicator or key factors success which can be used to develop a simple model of knowledge transfer in SMEs.

#### Characteristics of the transfer agent

Characteristic of transfer agent is characteristic of the institution or organization which is seeking to transfer the technology. In the transfer knowledge, characteristic of transfer agent is characteristic of the institution or organization which is seeking to transfer the knowledge. There are some important factor that related to the transfer agent, i.e the statement of mission, capability of resource, management style, motivation of the source, and reliability of the source.

- **The statement of mission.** According to Bozeman (2000), the statement of mission must be define at the beginning of activity [5]. This statement articulates the purpose of organization to doing a knowledge transfer. This statement is also answers the question, "Why the organization conduct a set of process for a knowledge transfer?".
- **Capability of resource.** According to Bozeman (2000), capability of resources is determined by presence of scientific and technical human capital (S & T human capital). S & T human capital is the sum total of scientific and technical and social knowledge and skills embodied in a particular individual in an organization (which acts as transfer agent) [5]. According to Gouza (2006), capacity of resources is determined by capability of owned by the source of knowledge to share their knowledge (capacity of teaching) [9]. Based on Bozeman (2000) and Gouza (2006), capability of resources is determined by the technical and social knowledge and skills embodied in individu which act as transfer agent and ability of transfer agent to teach the transfer recipient.
- **Management style.** In his model, Bozeman (2000) states that another important factor of the transfer agent is a style of management. However he not specify more details about what is meant by management style. According to Ngoc (2005), most of the researchers agree that leaders play an important role in establishing some of the key conditions required to facilitate knowledge transfer and Ngoc (2005) used the term transformational leadership as an approach to describe the management style [13]. Based on that, this study use transformational leadership as a key factor for management style in organization which is act as transfer agent.

- **Reliability of resource**

Reliability of resource does not appear as factor influencing the transfer agent in model of transfer of technology from Bozeman (2000) but these factor appear in the research of transfer of knowledge from Gouza (2006). According to Gouza (2006) reliability of the source is one of the factors influencing the transfer agent. According to Szulanski in the year 1996, 2000, when the source unit is not perceived as reliable, is not seen as trustworthy or knowledgeable, initiating a transfer from the source will be more difficult and its advice and example are likely to be challenged and resisted [9]

- **Culture**

Bozeman (2000) also say that a broad issue in characteristics of the transfer agent is the nature of the institution, its history, and culture [5]. According to Gouza (2006), when the parts involved in the process of transfer of knowledge have the same culture of work, they turn out to be more effective. In this sense, Davenport et.al in the year 1999 argued that the organizations usually trust more in organization that are socially similar to them. Likewise, Mowery et.al in the 1996 confirmed that a major knowledge transfer exists when the cultures of the organizations are similar [9].

- **Motivation of resource**

Motivation of the source also does not appear as factor influencing the transfer agent in Bozeman (2000) but these factor appear in the research of Gouza (2006). In the year 1996, Szulaski argued that the motivation of the recipient to accept knowledge proceeding from external source, and to commit itself in the achievement of activities, it can be a critical in the success of the transference. Lack of motivation may result in foot dragging, passivity, freigned acceptance, hidden sabotage, or outright rejection in the implemmentation and use of new knowledge[9].

### **Characteristics of the transfer media**

Characteristics of transfer media is vehicle, formal and informal by which the knowledge is transferred [5].

- **Formal transfer media.** Examples of knowledge transfer by using a formal media are conducting training and discussion forums. Training is the teaching of vocational or practical and relates to specific useful skills that involve goals normally reflect the demand of a job role [15].
- **Informal transfer media.** Informal transfer media is necessary for tacit knowledge. Tacit knowledge can only be acquired trough the direct contact between transfer agent and transfer recipient, mentoring, teamwork, chat rooms, personal intranets, and opportunities for face-to-face conversations such as group dialogue or personal reflections on experiences and lessons learned [13]. Beside that, we can use tea-break as informal transfer media. This method provides a forum were transfer agent and transfer recipient can discus over tea or at break period in a common room. This method develops social relationship between transfer agent and transfer recipient thereby building trust [14].

### **Characteristics of the transfer object**

Transfer object is content and form of what is transferred, the transfer entity [5]. Type of knowledge is factor related characteristics of the transfer object. The challenge in knowledge management is to determine how each knowledge type can be codified and transferred in an organization.

- **Tacit knowledge** is personal; it is hard to formalize and communicate to others. It is also generally more complex, existing in the mental models and expertise gained over time and through personal [13].
- **Explicit knowledge** is what is written or recorded in manuals, patents, reports, documents, assessments, and databases and can be readily codified, articulated, and captured. Eexplicit knowledge can be transferred through more technology-driven, structured processes such as information systems, Lotus Notes, and similar mechanisms such as a shared best practice database [13].

### **Characteristics of the transfer recipient**

Transfer recipient is characteristic of the institution or organization receiving the transfer object. There are some impotant factor that related to the transfer recipient, i.e resources, manufacturing experience, marketing capabilities, bussines strategy, capacity of learning, and motivation of resources.

- **Resources**

According to Bozeman (2000) resource is the availability of the recipient, human aspects, facilities and infrastructure supporting the transfer [5].

- **Manufacturing experience**

In his model, Bozeman (2000) states that another important factor of the transfer recipient is a manufacturing experience. Bozeman (2000) argue that manufacturing experience is experience of the recipient in manufacturing

- **Absorptive capacity**

Absorptive capacity does not appear as factor influencing the transfer recipient in Bozeman (2000) but these factor appear in the Gouza (2006) research. Absorptive capacity was defined by Cohen and Levinthal in the year 1990 as “ the ability of a firm to recognize the value of new information, assimilate it, and apply it to commercial end”. [9].

**Effectiveness of knowledge transfer**

According to Ngoc (2005), effectiveness of knowledge transfer can be measured by firm performance. Ngoc (2005) use balanced scorcard from Kaplan and Norton in the 1996 to measure firm performance. In this method, firm performance is examined from four different perspective over several year, i.e customer perspective, process perspective, financial perspective, and growth and development perspective [13]. Branchos et.al (2007) use new product introduction to measure organizational performance [6].

Based on the identification of variables that have been described above and the relationships that exist in Bozeman effectiveness of technology transfer (see Figure 1), this study try to built more simple hipotesis for knowledge transfer in SMEs batik.

- Hipotesis 1: Effectiveness of knowledge transfer which is measured by improvement of SMEs performance is influenced by the media which is use by transfer agent to transfer knowledge from trasfer agent to transfer recipient.
- Hipotesis 2: Effectiveness of knowledge transfer which is measured by improvement of SMEs performance is influenced by the object which is transfered by transfer agent to transfer recipient
- Hipotesis 3: Effectiveness of knowledge transfer which is measured by improvement of SMEs performance is influenced by match between object and media transfer which use by transfer agent to transfer knowledge to transfer recipient

Conceptual model of the three hypotheses above can be seen in Figure 3 untill Figure 5.

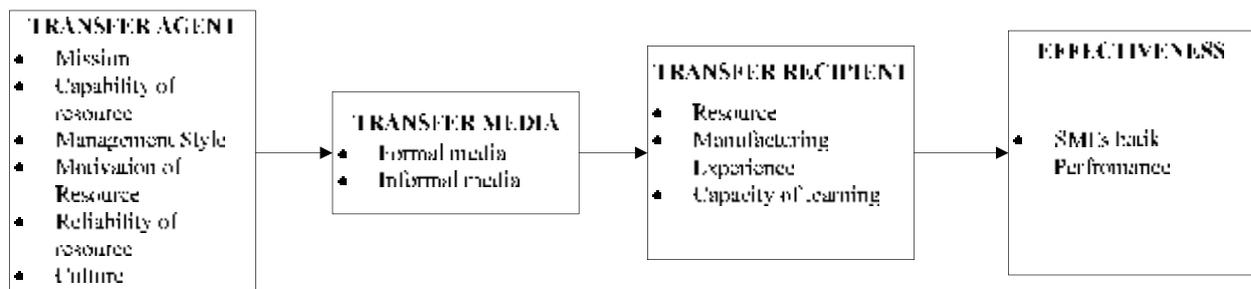


Figure 3 : Transfer agent, transfer media, transfer recipient, and effectiveness of transfer knowledge

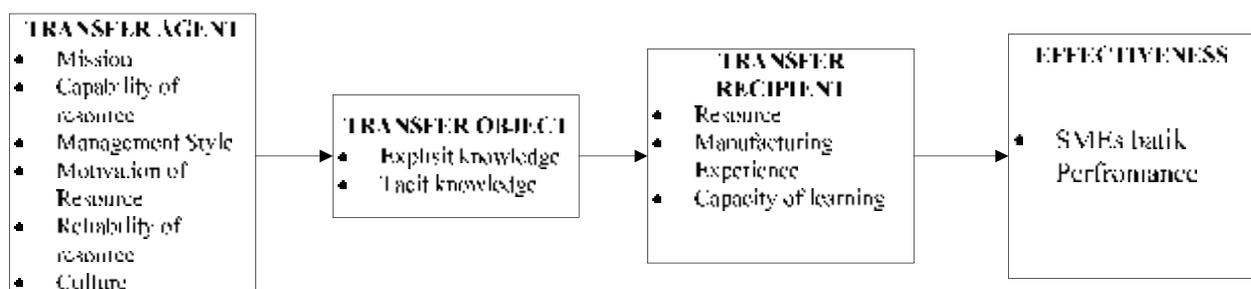


Figure 4 : Transfer agent, tranfer object, transfer recipient, and effectiveness of transfer knowledge

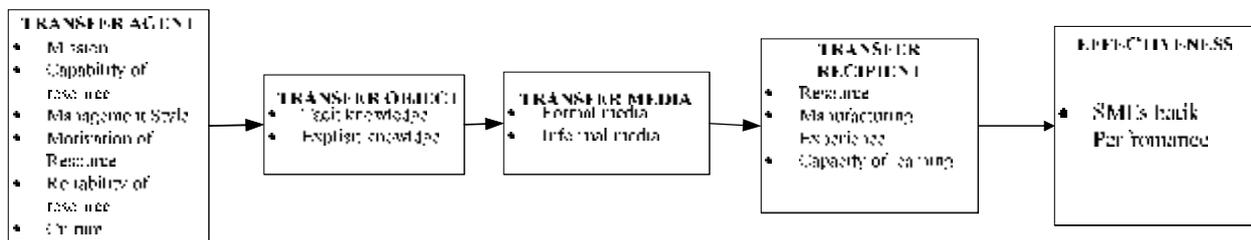


Figure 5 : Transfer agent, transfer object, transfer media, transfer recipient, and effectiveness of transfer knowledge

#### 4. Discussion

Focuss Group Discussion (FGD) conducted in a Solo attempt to illustrate how the conceptual model can accommodate the transfer of knowledge that occurred in SMEs batik in Solo.

- In SMEs batik in Solo, transfer agent derived from the Forum Pengembangan Batik Laweyan which cooperate with government and from educational institutions. Forum Pengembangan Batik Laweyan and educational institutions are considered can be doing the transfer of knowledge effectively as both have clear mission and motivation and have sufficient capability and reliability.
- Although the transfer agent has been using formal and informal media (such as training, direct meetings, and discussions), but the role of the use of media to promote effective knowledge transfer has not been felt by SMEs batik. In this case, the use of that media cannot improve the performance of SMEs batik. The results of further discussion indicate that SMEs batik Solo need additional media in order to transfer the knowledge more effectively, i.e. direct supervisor and assistance from transfer agent for the implementation process of new knowledge and evaluation of the successful application of new knowledge.
- Object of knowledge which is getting by batik craftsmen can be divided into tacit knowledge and explicit knowledge. Tacit knowledge includes knowledge of how to make batik, which is derived from the ancestral heritage and knowledge of how to develop the designs and motifs which is derived from experience and imagination of the craftsman. Explicit knowledge includes knowledge about how to make the production process of batik more efficient and how to use natural dyes. In SMEs batik Solo, both of object of knowledge give significant contribution to improvement of their performance because transfer agent (Forum Pengembangan Batik Laweyan and educational institution) have capability to deliver the tacit and explicit knowledge appropriate to the need of SMEs batik. In the other side, most of the SMEs batik has a strong motive to learn tacit knowledge because they want to maintain batik as heritage that can be passed on from one generation to the next generation.
- To improve the effectiveness of knowledge transfer in SMEs batik, transfer agent has used the media which is suitable with the object of knowledge to be transferred. Formal media (training) is used for explicit knowledge, while the informal media, such as face to face conversations and tea break is used for tacit knowledge.

#### 5. Conclusion

Factors that influence the effectiveness of knowledge transfer in SMEs batik Solo, i.e.: transfer agent, transfer recipient, transfer object, and transfer media. Among the four factors, the transfer media is a factor that is considered not able to connect effectively the process of transfer of knowledge between the transfer agent and the recipient. This is because, until now, transfer media which is given by transfer agent just limited on temporarily training with no follow-up whereas SMEs batik in Solo need direct supervisor and assistance from transfer agent for the implementation process of new knowledge and evaluation of the successful application of new knowledge. This study is preliminary research about key success factor which can influence the effectiveness of knowledge transfer in SMEs batik, so all of conclusion about relationship between transfer agent, object transfer, media transfer, transfer recipient, and effectiveness of transfer knowledge must be followed up with empirical test. For the further research, this study can be continued by testing the model empirically through distributing the questionnaire to some partisipan of SMEs Batik in Solo, educational

institution, and society and doing processing the results of questionnaires using the data processing software, like LISRELL.

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