

Information reception and processing in purchasing
A comparison of public and private sector purchasing

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Among the required skills of purchasers, communication is one of the most frequently mentioned ones. Information reception and processing are important elements of this skill. This paper focuses on how and through what channels purchasers process inputs and how they understand them. The literature revealed that there are differences in tasks between the two sectors, but differences in communication have not yet been addressed. Based on a survey among purchasers, the paper finds private sector purchasers tend to be more creative, more open to teamwork and more visual, while public purchasers tend to focus on facts and on proved solutions. Furthermore, they are more verbal than private sector purchasers. The results indicate that differences between private and public purchasing cultures stem from the task features of the two sectors, and from different personal skill sets. The results have strong relevance for organisations focusing on the training of purchasers.

Keywords: public- private purchasing comparison, information processing, communication skills

JEL-codes: H57, M11, D83

1. Introduction

Communication is an important element of supply management. Managing relationships with suppliers and internal teamwork are both integral parts of the daily tasks of purchasing, and both rely on communication. The question of what determines this communication is seldom raised in literature. Some specific research exists to recognise that individual perception and social factors have an influence on how relationships are managed (Bakker – Kamann 2007).

Large (2005) identified that there are a strong effects of the oral communication capabilities and attitudes on the success of supplier management. Oral communication capability has three dimensions: the ability to pass on information, the ability to persuade and the ability to listen and understand (Large 2006). Hult et al. (2000) suggested that there is a positive relationship among organisational learning, information processing and the cycle time of the purchasing process. These results highlight the importance of dealing with communication skills and its components.

The comparison of the purchasing practices of the public and the private sector is often addressed in literature. Roodhooft and Abbeele (2006) and Lian and Laing (2004) investigated the differences or similarities in the context of the purchased items. Johnson et al. (2003) focused on the organisational roles and responsibilities. Rendon and Snider (2010) presented a comprehensive reasoning on why differences exist in the supply management of the business and the public sector. Public purchasing has a managerial, legal and political framework, it is part of public budgeting and financial management, there are structural differences between private and public interest, lack of external influence is indicated and there is a difference between the “bottom line” and “public interest”. Stentoft Arlbjørn and Vagn Freytag (2012) also highlighted that public enterprises have to balance a number of interests and operate under different conditions than private enterprises.

As these results show, the purchasing practices of the two sectors have been compared in the literature from different aspects, but competencies and skills of the purchasers have not yet been addressed, to our knowledge. The research on comparing private and public sector purchasing aims to approximate the practices of the two sectors, to allow them to learn from each other. This paper aims at contributing to this discussion by investigating the research gap about competencies and skills. Though the education of the two groups is separately delivered, as the programs of the two sectors are of a different nature, an awareness of the similarities and differences would help the interconnectivity of the two sectors. The aim of this research is twofold: first, by identifying the information reception characteristics of the two groups, it aims to support the interconnectivity of the two sectors; and second, it aims to support the development of teaching methodologies for postgraduate programs training public and private purchasers.

The point of departure of this paper is the assumption that the differences between private and public sector purchasers can be explained by the differences arising from circumstances, personal interest or education. Comparing the two activities and the persons who carry them out is necessary in order to be able to decide whether there is a difference. If the difference exists, then the question is how it can be grasped, and what kind of skills need to be developed for improving interoperability. To formulate a toolkit for development, it is important to gain a proper understanding of the current skills, and the reasons of the differences. The paper aims to complete the first steps by comparing the information reception of private and public sector purchasers. The results are relevant for organisations providing educational programs for purchasers. The comparative method of Birou et al. (2016) used in the paper was in fact originally also used for educational purposes.

The structure of the paper is the following. As there are no research results available on comparing information processing and communication skills of private and public purchasers, literatures related to the skills of both groups are reviewed separately. This is followed by the presentations of the paper's hypotheses which were tested with the help of the dimensions of learning styles (Felder – Silverman 1988). After the presentation of the results, the paper offers some brief concluding remarks.

2. Private purchasing tasks and skills

Successful negotiation with suppliers has had an important role in the work of purchasers for a long time. However, the reinforcement of the supplier chain approach gained importance only with the development of the purchasing profession. In its implementation, the cooperation between the various company functions and the harmonised performance of tasks play a vital role. In everyday practice, this requires day-to-day cooperation and communication between experts in different areas, which had earlier functioned with a great deal of independence; the solution to harmonising tasks has been the setting up of multifunctional groups. In the USA, some 80 percent of companies (Trent 1996) used sourcing teams as early as in the 1990s. This meant that procurement decisions were characteristically prepared and made in teamwork (van Weele 2010; Moczka et al. 2015), and procurement was frequently involved in the work of other groups as well. Giunipero and Vogt (1997) identified 16 tasks associated with purchasing, for which the companies under study set up teams. At the same time, tasks which in addition to traditional price negotiations embrace thinking together with the supplier and cooperation with them keep gaining in

importance (Kiratli et al. 2016). Azadegan et al. (2008) highlight that the purchasing organisation's absorptive capacity, its ability to learn and use external knowledge positively moderate the impact of supplier innovativeness on manufacturing performance.

This direction of the development of purchasing work explains why the literature has been placing communication and negotiation skills and the ability to work in teams to the first place in the list of purchaser skills for a long time now (Giunipero – Percy 2000; Knight, et al. 2014). A study of Caps Research (2007) highlights leadership ability, collaborative and innovative spirit as a required skill in the future, indicating cross cultural and cross functional skills as well. More recently, Prajogo and Sohal (2013) also found that communication and teamwork were the most important skills beside technology skills, innovative and enterprise skills, compliance and legal knowledge, in this order of importance.

Another common point in recent research related to competences relates to innovative ability. This appears as an important element in the model of Caps Research (2007), as well as the results of Prajogo and Sohal (2013). This too can be attributed to the changes in purchasing tasks. The strategic role implies the management of more complex problems, in which new solutions have a tremendous role, be that the management of new contacts, the application of new technologies or the management of risks related to these. Although this element does not yet explicitly appear in some competence lists (e.g. Knight et al. 2014), it keeps gaining in importance. This is also supported by the fact that in an analysis of the relationship between purchasing performance and company performance, Foerstl et al. (2013) identified a relationship between talent management and purchasing performance. This highlights the importance of understanding how purchasing skills need to be developed.

3. Changes in the tasks of the public purchaser

Traditionally, public procurement activity has been based on the knowledge of the relevant regulations and appropriate administration. Frequently, the Ministry of Justice is in charge of legislation, and not the minister in charge of the economy or development. Public procurement activity is subject to vigorous control; because of this, accurate and frequently demonstrative administration has hidden the real content of the activity for a long time.

With the appearance of the criteria such as value for money or sustainability, it has become possible to rethink the role of the public procurer and, with the spreading of electronic

support, the administrative burden could be reduced. By the 21st century, support for small and medium enterprises (SMEs) and the application of green and social criteria became possible in countries with more advanced public procurement culture. In other words, attention has gradually shifted away from issues of procedural law, and it has become increasingly necessary to train more open-minded public purchasers.

Accordingly, the definition of a public procurer's skills has also changed in the literature. While Hunja (2003) underlined the importance of legal skills in relation to developing countries, Thai (2001) clearly pointed out the importance of procurement techniques and methods, and the process, which have been the core knowledge and skills that public procurement professionals needed to have. This was reinforced by Lawther and Martin (2005), when they pointed out in their article on innovative practices in public procurement partnerships that services contracting, information technology and knowledge development all require specialized contracting expertise and skills.

Writing about the role of public procurement, Caldwell et al. (2005) made it clear that purchasing personnel must face changing capability requirements. The importance of contract management leads to the unfolding of public procurement activities, similarly to the changes in the activities of purchasers. With the transformation of public procurement activity from the early 2000s, there has been an ever stronger demand for the diverse development of the skills of public procurers.

The traditional arms-length management of suppliers seems to be moving towards closer supplier relationships, and suggests new skills for purchasers. Procurement professionals will need the competencies and institutional support necessary to assess and take highly contingent approaches. Teamwork and dissemination skills rather than technical skills are highlighted here. The 'one size fits all' solutions that may be easier for corporate-style training to deliver will not be appropriate. (Caldwell et al. 2005: 329)

Moreover, Caldwell et al. (2005) called attention to the fact that public procurement expectations would only be met if they were backed by the appropriate professional development, the fundamental objective of which was that public procurement experts take a market or network approach. This is very similar to the demands of the market of purchasers, namely that purchasers should be able to cooperate and should be more open to new things. This is what Caldwell et al. pointed out for public procurement when they underlined the need

for information technology skills in relation to e-procurement, enterprise-wide resource planning tools, etc. An understanding of technical issues is just as important as the ability to understand market dynamics, or suppliers' business models for the public sector. Accordingly, their most important conclusion is "that public procurement skills need to evolve to address more strategic issues, particularly post-contract award management" (Caldwell et al. 2005: 330).

The expansion of public procurement activity, therefore, requires the presence of the appropriate experts, requires their training, their openness and their ability to cooperate. In this form, the demands of the public procurement market align with the demands of the procurement market, which also means that we may assume that interoperability between public procurers and private purchasers will be greater in the future, if their skills are developed.

4. Hypotheses

Although there is very little comparative literature on the development of purchasing and public procurement, and the changes in the competences needed to perform the tasks, the summaries above underline the existence of both similarities and differences. The more advanced public procurement practices frequently draw on the purchasing practices of the for-profit sector, and this raises the issue of similarity between the necessary competences. Our point of departure is that development in both areas points towards cooperation (both with other areas of the organisation and with suppliers), and this requires communication. An important element of this is the way in which a person can receive and process information. This is what we define as information reception. It seems that literature has mostly tended to study the other side of communication (namely, how a person gives information to others). Yet information reception is also an important part of efficient communication: it is how a person can understand others, acquire information needed to see through a new situation and learn. Research related to procurement has not dealt much with these issues.

The paper examines the information reception skills of professionals working in public procurement and purchasing. In relation to this, we propose the following hypotheses.

H1. The two groups do not differ essentially regarding their information reception.

The hypothesis applies to the general characteristics of the two groups. The bases of the assumption are the similar nature of the tasks from several aspects, the ability to cross over between the two groups and the common elements of the development of the two professions.

We believe, however, that there will be substantial differences in certain elements of information reception. We base this on the fact that the practices of the corporate sector are more advanced: the supply chain approach is stronger, and the role of purchasing is frequently strategic. Thus the purchasing task is also different, as reflected by the hypotheses H2 and H3.

H2. Private purchasers are more open to teamwork than public procurers.

In the case of purchasers, cooperation with other organisational units is part of their basic activity, that is, the activity follows from the nature of the tasks and the company's purchasing approach. Public procurement builds less on cooperation, particularly because of the single channel dataflow between the contracting authority and the bidder, where the representative of the contracting authority is responsible for sending the appropriate data at the appropriate time. The strongly administrative nature of the task leaves its mark on cooperation.

H3. Private purchasers are more creative than public procurers.

The basis of our assumption is given by the different environment and the set of expectations stemming from this. The corporate sector expressly expects purchasers to search for new solutions. New solutions are guaranteed an outstanding role because they can constitute a competitive advantage for the organisation. The less open, regulated environment gives much less of an opportunity for public procurers. True, public procurers also need to adjust to ongoing change, but the change also implies uncertainty and the knowledge of methods well-proven by others may be a great deal of help in managing this uncertainty.

5. Methodology

We collected data primarily with a view to support the development of training methodology. Between 2014 and 2016, we carried out surveys of the students at the Purchasing Management and Public Procurement Management Postgraduate Programs at Corvinus University of Budapest in order to map the students' learning style. In the analysis, the responses of the Purchasing Management Program will be referred to as private purchasers

and the responses of the public procurement program will be referred as public purchasers. The students have been working for business organisations for at least 2 years. The students of the Purchasing Management Program worked as purchasers or purchasing managers, while the majority of public purchasers worked expressly in supporting public procurement procedures, or expected more tasks in this field in the course of their future work. They attended the program with the goal of gaining a deeper insight into the world of purchasing/public procurement. Since the students in both groups had practical experience, they were considered to be a suitable sample of practitioners for our investigation.

To identify the characteristics of the two groups, we used the Soloman and Felder (2005) questionnaire for learning style index, which's theoretical basis was laid down by Felder and Silverman (1988). The purpose of the model is to systematise learning (information management) characteristics. What happens in the course of the work of the purchasing groups is the sharing of information, thus the model is probably unable to draw a picture of all the forms of appearance of professional diversity, but it does examine important elements of the work. In the course of the past few years, the model was subject to a deal of criticism (e.g. Muse 2001). We do not dispute that the methodology is necessarily complete for a comprehensive study of learning characteristics, but we chose it because its outstanding factors include the criteria involving the central elements of the hypotheses of our paper.

The questionnaire examines the following four dimensions of the learning style index:

- D1 Perception: what type of information is preferentially perceived?
- D2 Input: through which sensory channel is external information most effectively perceived?
- D3 Processing: how is the information preferred to be processed?
- D4 Understanding: how does the student progress toward understanding?

Each dimension of the learning style is assessed with 11 questions in the questionnaire. The respondents are thus measured by 44 questions. Each question has two categories. It is typical that respondents need to be able to function both ways, and their preferences change from time to time. However, they are asked to indicate the category that applies more frequently and their learning style is assessed based on the dominant answers. The differences of the two groups in case of the four dimensions were analysed by ANOVA.

In our survey, the data of 6 groups of students (3 consecutive cohorts of purchasing and public procurement postgraduate programs.) were investigated. Altogether, the responses of 157 students were analysed. Responses were anonymous and voluntary. The characteristics of the samples are summarised in Table 1. and Table 2.

Table 1. Respondents of private purchasing and public procurement postgraduate programs

| | Private purchasers | Public purchasers |
|-----------------------------------|--------------------|-------------------|
| No. of respondents | 64 | 93 |
| Response rate | 92.75% | 95.88% |
| Average age of respondents (year) | 36 | 38 |
| Share of women (%) | 54.69% | 66.67% |

Source: authors

Table 1 shows that the response rate was high in case of both programs. As the answers were voluntary, it is possible that the more committed were more likely to answer, but with such high response rates this is unlikely to effect the results.

Table 2. Original degree of purchasing postgraduate programs

| | Private purchaser | Public purchaser |
|-------------|-------------------|------------------|
| Management | 31 | 27 |
| Engineering | 12 | 10 |
| Legal | 2 | 38 |
| Teacher | 8 | 7 |
| Other | 11 | 11 |
| Altogether | 64 | 93 |

Source: authors

Table 2 shows the original degrees of the students. It can be seen that both groups have a heterogeneous background. In case of private purchasers, the ratio of those with a degree in management and engineering is higher. The others have degrees in teaching, communication etc. Public purchasers tended to have law degrees and the second most frequent diploma was in management. There were also some engineers and teachers.

6. Results

This section presents the results of the survey along the four dimensions of the Soloman and Felder (2005) index of learning styles.

6.1. D1 - Perception

The perception of information is the first dimension of the index of learning styles. It defines the type of information preferentially perceived by the individuals. The two categories are sensory and intuitive. Sensory means that the individual tends to like learning facts, often like solving problems by well-established methods and dislikes complications and surprises. They tend to be patient with details and good at memorizing facts. Intuitive people often prefer discovering possibilities and relationships, like innovation and dislike repetition. They tend to work faster and to be more innovative than sensors.

The overall results about perception is presented in Table 1.

Table 3. Overall results about perception

| | Rate of sensory answers* | Rate of intuitive answers |
|--------------------|--------------------------|---------------------------|
| Private purchasers | 58.19% | 41.81% |
| Public purchasers | 65.15% | 34.85% |

F value: 4.621, significance: p=0.033

Source: authors

Table 3 shows that the public purchasers are sensory than intuitive, while the rate of intuitive answers is higher in case of the purchasers. However, in the case of some individual questions, even more remarkable differences can be identified. In the case of 6 out of 11 questions, the relative difference (ratio of the rate of answer ‘a’ in the two groups) was higher than 10%. Interestingly, the direction of the differences was not the same (sometimes one group of purchasers had a higher rate of ‘a’, sometimes higher rate of ‘b’ answers.) However, considering the content of the questions, it was common that private purchasers tended to choose those answers which were related to creativity and new solutions. E.g., in the case of question 14, almost twice as many public purchasers indicated answer ‘a’ (they prefer to read something that teaches facts or tells of how to do things), while 76.54% of the private purchasers indicated answer ‘b’ (they prefer to read something that gives new ideas to think about) Question 30 was somewhat similar. Public purchasers preferred (67.39%) answer ‘a’ (when I have to perform a task, I prefer to master one way of doing it), while private

purchasers (53.23%) preferred answer ‘b’ (when I have to perform a task I prefer to come up with new ways of doing it).

6.2. D2 - Inputs

External information can be perceived through multiple channels. Visual individuals remember best when they see something (pictures, diagrams, flow charts, films). Verbal learners get more out of words (written and spoken explanations). The results are presented in Table 4.

Table 4. Overall results about inputs

| | Rate of visual answers | Rate of verbal answers |
|--------------------|------------------------|------------------------|
| Private purchasers | 76.81% | 23.19% |
| Public purchasers | 65.25% | 34.85% |

F value: 14.968, significance: $p=0.000$

Source: authors

The results in Table 4 show that private purchasers are significantly more visual than public purchasers. They indicated a higher rate of ‘a’ answers in 9 out of 11 cases. The difference is perhaps the most telling in the cases of questions 7 and 31. In case of question 7 (‘I prefer to get new information in (a) pictures, diagrams, graphs, or maps; (b) written directions or verbal information’), the ratio of ‘a’ answers was 87.5% in case of the private purchasers and 59.14% in case of the other group. For question 31 (‘When someone is showing me data, I prefer (a) charts or graphs; (b) text summarizing the results’), 77.78% of private purchasers indicated answer ‘a’, while only 53.26% indicated ‘a’ in the other group.

6.3. D3 - Processing

The third dimension of the learning style is how information is most efficiently processed. Active learners tend to retain and understand information best by doing something active with it: discussing or applying it, or explaining it to others. Reflective learners prefer to think it through first. Active learners tend to like group work more than reflective learners, who prefer working alone. The results on this dimension can be seen in Table 5.

Table 5. Overall results about processing

| | Rate of active answers | Rate of reflective answers |
|--------------------|------------------------|----------------------------|
| Private purchasers | 61.26% | 38.74% |
| Public purchasers | 54.37% | 45.63% |

F value: 5.394, significance: $p=0.022$

Source: authors

The ratio of active answers is higher in the case of private purchasers. Having a look at the major differences, private purchasers tended to prefer answers connected to group work and open communication of problems. In the case of question 21, a higher rate of private purchasers were in favour of learning in groups (41.27%) than the public purchaser group (21.5%). Question 9 indicates that private purchasers are more active in group work (92.19%), than the public purchaser group (82.79%). They were more open to working in groups where they did not already know the group members.¹ More private purchasers consider themselves to be outgoing than reserved (77.78%), while this ratio is somewhat lower in the public purchaser group (64.13%).

6.4. D4 - Understanding

The fourth dimension of learning style is about how the individual progresses toward understanding. Sequential learners tend to gain understanding in linear steps, they tend to follow logical stepwise paths in finding solutions. Global learners tend to learn in large jumps, they may be able to solve complex problems quickly or put things together in novel ways once they have grasped the big picture, but they may have difficulty explaining how they did it. Results are presented in Table 6.

Table 6. The overall results about understanding

| | Rate of sequential answers | Rate of global answers |
|--------------------|----------------------------|------------------------|
| Private purchasers | 53.69% | 46.31% |
| Public purchasers | 54.27% | 45.73% |

F value: 0.050, significance: $p=0.824$

Source: authors

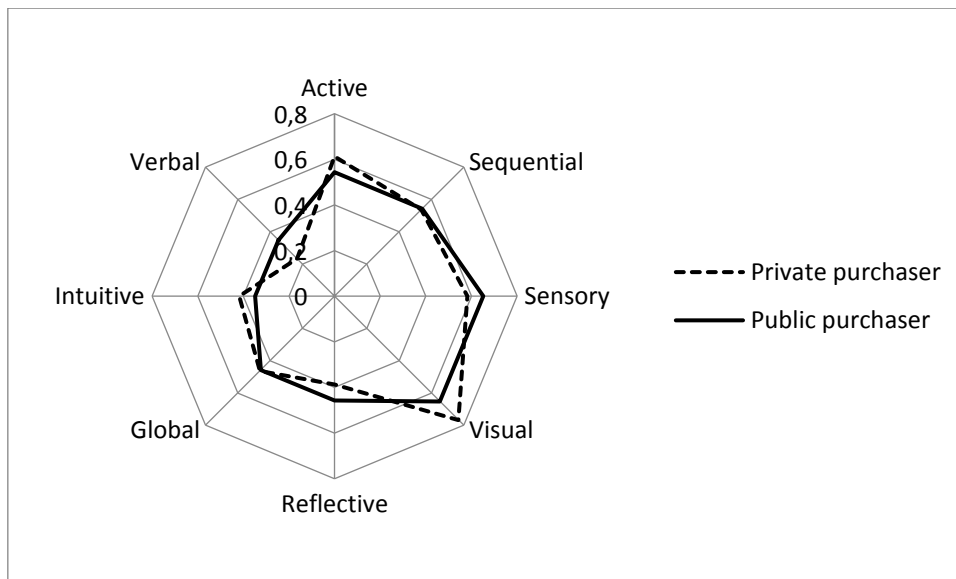
The answers of the two groups are similar; there is no significant difference in the aggregate index of understanding. There were no differences of merit at the level of the individual questions either. So probably other personal qualities may cause the differences. Interestingly, one of the questions which showed a difference was related again to group work. When solving problems in a group, 50.79% of the private purchasers and 58.43% of public

¹ Here the ratio of 'b' answers, considered to be a reflective approach by the original index, was 64.07%, while 52.69% in case of the public purchaser group.

purchasers would be more likely to think of the steps in the solution process, than to think of possible consequences or applications of the solution in a wide range of areas.

To sum up the results, Figure 1 shows the summary data of the dimensions of the Solomon-Felder Learning Style Index.

Figure 1. Four dimensions of the Solomon-Felder Learning Style Index



Source: authors

Conclusions

This paper aimed to investigate and compare information reception by private sector purchasers public purchasers. As communication skills were found essential, this research highlighted an important element: how information is processed, what inputs are preferred, how is information preferred to be processed and how understanding is developed.

The first hypothesis was developed based on the results of the literature. Theory did not indicate that a difference can be expected in terms of the information reception and processing skills of the two groups. However, considering the different task features and influences in task completion based on the literature, it was hypothesized that differences can be found in attitude towards teamwork and creativity.

Our results revealed that there were moderate differences in the overall dimensions of the investigated model in how individuals progress towards understanding. However, there was a

significant difference between the two groups in terms of the channels they preferred to receive information through. However, in case of information perception, a higher rate of private purchasers indicated creativity-related answers. Public purchasers seem somewhat more sensory, but that is because they focus on already established methods. On this basis, the conclusion can be drawn that public purchasers indeed insist more on concrete factual knowledge and facts. They are more willing to check facts and follow the available standards. In the course of the procedure they immediately react to information received in accordance with the rules and prepare the announcement launching the procedure and their answer letters in the well-proven manner. That is because their market also works more with templates, so everything needs to mean the same thing for everybody. They prefer things proven, underpinned by facts or legal regulation, rather than ideas and other approaches. In comparison, private purchasers insist less on existing knowledge or theories. This led to the acceptance of Hypothesis 2.

Hypothesis 3 was also accepted. In case of information processing, the rate of active answers was higher for private sector purchasers. However, the difference stems from a part of the questions. Here private purchasers were more comfortable with open communication and teamwork.

Based on these results regarding H2 and H3, the Hypothesis 1 was refuted.

However the distinction between groups cannot be based on the fact that we generally state the difference in information reception. Whether the two groups' attitude towards creativity or teamwork is not on the same level does not mean that these aspects could be a source of sharp differentiation in teaching practice. In selecting teaching methodology, it is worth considering the differences in visuality, perception and information processing.

The overall conclusion of this paper is that characteristics of private and public purchasers in many ways arise from the circumstance to which these professionals need to adjust. Accordingly, these differences need to be taken into account in the course of education, negotiation and consulting. Here we refer to the fact that the more regulated way of thinking of public purchasers makes flexible adjustment to negotiations less possible, or that in the case of private purchasers, the role of visual presentation is greater in education or consulting, hence this should be used in communicating with them.

Our research focused on the characteristics on the basis of which expertise can be more easily developed, leading to more successful team work and efficient negotiations. The next step is to find interrelations not only in the separation of private purchasing and public procurement markets, but also in the motivation of the individual experts. Studying in what direction the colleagues – interested in different things with differences in qualifications and experiences – moved in their responses may add additional hues to the picture in analysing the communication and information processing of private and public purchasers.

In processing information, a purchaser may learn about him or herself and a peer professional, and obtain a clearer picture of the possibilities for development. Educators, consultants, organisation developers and sellers will be able to develop communications more easily, provided that they accept the characteristics explored by this article. If the purchasers participating in the study feel that they gained a better understanding of themselves or the other members of their group, our work has already achieved its objective.

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