

# The Importance of University Students' Needs Identification to Support an Effective Communication Process in Teaching and Learning Activity

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Teaching is a form of effective communication between lecturer and his/her students allowing optimal transfer of learning. Failing to fulfill this would result in student passive or very submissive learning behavior. Effective instructional communication could be reached by identifying the students' needs so lecturers can find the most appropriate teaching methods to fulfill the needs. *Dominance, Influence, Steadiness, Conscientiousness/Compliance* (DISC) (Rosenberg & Silvert, 2013) inventory is a tool that can be used to identify the needs of the students. This preliminary study was keen to identify the needs of Telkom University Engineering Students from all majors in classroom communication. Results obtained through cross-tabulation analysis of DISC data from 6439 convenience samples (2009-2012 fresh students) reveal the basic academic needs: need to see how the content relates to their lives and pursue some interests of their own, and interpersonal/instructional needs: inclusion and affection.

*Keywords:* instructional communication, basic academic needs, interpersonal/instructional needs, DISC

Kegiatan mengajar merupakan salah satu bentuk komunikasi efektif antara dosen dan mahasiswanya sehingga terjadi *transfer of learning* yang optimal. Jika kebutuhan ini tak terpenuhi maka yang terjadi antara lain adalah perilaku belajar yang pasif/sangat pasrah, kurang gairah mencari informasi lebih lanjut. Komunikasi yang efektif dapat dicapai melalui identifikasi kebutuhan mahasiswa dalam berkomunikasi dengan menggunakan *Dominance, Influence, Steadiness, Conscientiousness/Compliance* (DISC) (Rosenberg & Silvert, 2013) inventory. Penelitian ini merupakan survei pendahuluan untuk mengidentifikasi kebutuhan mahasiswa baru Fakultas Teknik Universitas Telkom 2009-2012. Dengan teknik *non-probability sampling* terutama *convenience samples*, 6439 data DISC diolah menggunakan analisis tabulasi-silang. Hasil menunjukkan bahwa kebutuhan mahasiswa baru 2009-2012 yang harus dipenuhi yaitu kebutuhan akademik dasar: kebutuhan untuk mengetahui keterkaitan antara pengalaman mereka dan materi pelajaran yang dipelajari; adapun kebutuhan interpersonal atau instruksional yang harus dipenuhi adalah kebutuhan untuk menjadi bagian dari kelompok, serta kebutuhan untuk diterima lingkungan.

*Kata kunci:* komunikasi instruksional, kebutuhan akademik dasar, kebutuhan interpersonal/instruksional, DISC

According to *American Heritage Dictionary of the English Language*, communication is "the exchange of thoughts, messages, or information, as by speech, signals, writing, or behavior." This definition indicates the relationship between teaching and communication (Prozesky, 2000) when teachers consistently educate

students for the knowledge transfer in learning activities, or in other words when teachers deliver information to students through speech, writing, and behavioral means. Effective teachers are effective communicators (Wrench, Richmond, & Gorhan, 2001). The important role of effective communication in teaching-learning setting is indisputable (Bee, 2012; Rubio, 2010; Sprague, 1993; Morgan, 1989; Ngongko & Agu, 1985). Communication is an important link between teachers who own the knowledge and students who learn (Hurt, Scott & McCroskey, as cited

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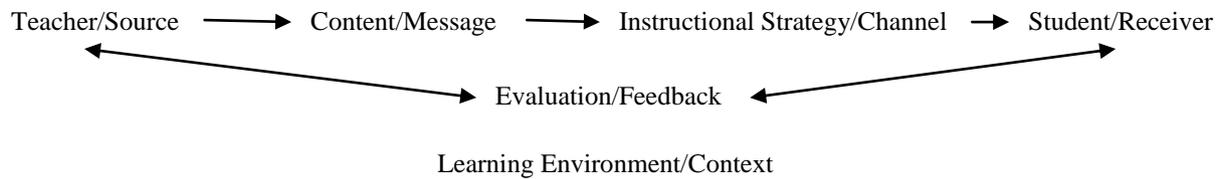


Figure 1. The instructional communication process (Wrench et al., 2001, p.4).

in Beebe & Mottet, 2009, p.3). The role of teachers is to help students to learn. Teaching-learning process cannot happen without communication (Beebe & Mottet). Communication in teaching-learning context is termed as instructional communication, a process in which teachers choose and arrange what the students are going to learn (content), decide how is best to help students to learn (instructional strategy), and determine how success in learning will be recognized and how the students' progress will be communicated by and to themselves (evaluation/feedback) (Wrench et al., 2001, p. 4).

Wrench et al. (2001, p. 40) stated that in order to develop communication, the students' needs must be fulfilled. In order to fulfill the students' needs, teachers need to do effective and efficient communication. When the students' needs are unfulfilled, problems will arise. Glasser (2005) indicates that when students' needs are unfulfilled, they are more inclined to demonstrate deviating behaviors. Students communicate with teachers to fulfill academic and particular interpersonal needs. However if the students' interpersonal needs are unfulfilled, the academic needs will be unfulfilled as well. Students occasionally attend school with the expectation of teachers fulfilling their academic and interpersonal needs. The fulfillment of students' needs is strongly related to how teachers fulfill those needs through communication and strategy to build the affect (Wrench et al., 2001, p. 48). According to the writer's observation of first semester Batch 2010 students of Telkom University Engineering Faculty, the learning behavior of students at class tend to be passive: they rarely ask, they show a low indication of effort to find information needed to understand materials (Nugraha, 2012). This learning behavior is also observed in Batch 2011 students with the lack of initiative to read the reference books independently, expect the lecturers to give the materials, rarely ask when chances are given; but the learning results are not in accordance with the determined target. These behaviors the indications that their interpersonal needs were not fulfilled, especially the need of control,

when they demonstrate very submissive conducts (Wrench et al., 2001, p. 51).

Similar to communication, the teaching-learning process did not always run easily or effectively in accordance with the objectives. Generally, students were complaining about the difficulties to understand the materials given by lecturers. Lecturers were also complaining about students' difficulties to understand their materials. At least this phenomenon happens at the Faculty of Engineering at Telkom University. This case shows that the communication between lecturers and students in learning process were not yet effective. Effective communication means giving attention to what is communicated, how the message is conveyed so that students can maximally understand the message delivered, and how the lecturers and students can exchange information from their own perspectives (Wrench et al., 2001). The efforts done by the faculty up to the present time are still at the level of individuals, depending on each lecturer with different styles such as tutorial or review of difficult materials. This eventually will miss the targeted objectives determined in *Satuan Acara Pengajaran* (SAP)/Lecture Session Unit (LSU). In order to develop the understanding of materials, students cannot act as passive receivers only. One of the efforts done by lecturers was by using the learning method in which students are encouraged to be more active in discussion and presentation, but until the present time the method used still depends on the lecturers. That is to say, lecturers have not used the various learning methods that consider students' need based on each type of their DISC.

In instructional communication there are two major groups of needs: basic academic needs and interpersonal/instructional needs. Basic academic needs consist of six needs namely (Wrench et al. 2001):

**Understanding the instructional objectives.** If students do not understand the instructional objectives, they will be confused or misguided. Because of that, in the learning process, lecturers need to clearly inform the students about the learning goals and success criteria.

**Knowing the aims for each material taught.**

Lecturers need to remind and communicate to students when the learning objectives are reached. Goal setting will reduce the lack of attention and students' confusion.

**Learning objectives must correspond to students' learning style and their cognitive development/potential.** Lecturers have to be aware of students' cognitive potential, like learning style, learning preference, and learning rate/tempo to understand the materials. Lecturers have to try to accommodate those things and to make sure that students' learning process is enhanced effectively by using materials and lesson plans that will help them to understand the lectures.

**Actively involved in learning process.** Learning process will be more likely to take place when students are more actively involved, not being passive or just being observers.

**Knowing about the application or relation of the topics of the lecture with their real lives or experience.** Students will be more likely to listen, communicate, ask, and learn if the topics of the lecture are going to be useful or compatible with their lives and if they are given the opportunity to do the things that interest them.

**Feeling the success experience in a learning process.** Feeling success, not failure, in a learning process will encourage students to be better and motivated.

Interpersonal/instructional needs consist of (Schutz, 1958 & 1966, as cited in Wrench et al., 2001, pp 49-50; Schutz, (n.d)):

**Control.** This need is about being a part of a group to show influence, power, compliance, responsibility, and guidance. This need is often seen as the need to show controlling behavior. There are two dimensions in this need, namely the need to show control over surrounding condition and the need to receive control, direction or guidance from others. Generally, students in any range of age need to feel that they can show control over several aspects of their school environment. Frequently students want to show controls that decide, rule, affect others, or order others. They need to show to others that they can make decisions, follow rules, do things their way, and show that they are responsible, competent individuals. Otherwise, sometimes students also feel the need of receiving command, guidance, and control in several aspects of their academic career area.

**Inclusion.** Interpersonal need of inclusion is a need to have and preserve a fulfilling relationship with others, relating with the need of being a part of a group, being recognized by a group, or being a member

of a certain group. This need is usually called as social need. This need is realized as a need to communicate, join, and interact with others. There are two dimensions of this need namely: (a) the need to express oneself as a part of a group, (b) the need to receive recognition, membership of a group.

**Affection.** An interpersonal need to receive affection is a need to be liked, accepted, loved, and cared for. This need is realized in the need to communicate in certain ways so that others will like or accept that individual. There are two dimensions in this need namely: (a) the need to show affection to others, (b) the need to receive affection, warmth, friendliness, concern, and being liked.

These needs must be fulfilled. Hurt, Scott, and McCroskey (as cited in Wrench et al., 2001, pp.50-52) show that problems will arise if students' interpersonal needs are not fulfilled. When students' interpersonal needs are not fulfilled, students cannot fulfill their intellectual needs and their interpersonal communication would not be effective.

When their control need is not fulfilled, students will be: (a) very submissive: they believe that their environment regards them as incompatible, irresponsible, and lower than others, destined to be followers not leaders, uncomfortable when they need to make a decision, unassertive, cannot stand for their rights and impressionable. They do not ask the questions that should be asked or find the help they need, they are inactive in group activities or works, they wait for others to tell them what to do, and they often do not find information needed to complete their assignments and requirements. They are often being left behind in their study results. (b) very rebellious: they believe that people outside their school see them as aggressive, rude, impatient, and rebellious individuals, unruly, reject all teachers' effort to manage or discipline them, ask for troubles. They ask many unnecessary questions, refuse to do homework, dispute the given tasks and scores, love to command others, want to be leaders by using intimidating and aggressive communication.

When the need of inclusion is not fulfilled, students could be: (a) very undersocial: they believe that people perceive them as inattentive, insular, unsociable, cynical, cold, unfriendly, and offensive or proud. (b) very oversocial: they believe that people perceive them as cheerful, friendly, and love to seek attention. They could be the "class-clowns" that use improper ways to get attention by dominating communication, violating social norm, obstructing others, being too friendly and doing absurd things at the wrong time.

When students' affection need is not fulfilled, students could be: (a) very impersonal: they believe that others regard them as cold, callous, unsympathetic, insensitive. They would be very careful to have relationships with others, be wary when being with others, rarely reveal their personal information, communicate in formal manners, cold and could only provide general information about them. (b) very overpersonal: they believe that others regard them as too friendly, too open. They become very communicative; wanting to give all information about them and their family even if the information is not supposed to be given, talking about information that is not supposed to be discussed openly at class or with others, revealing personal information about them, being inclined to establish relations. In reverse, if the students' needs are fulfilled, interactions between students and lecturers would increase. Communication process will be more constructive and effective because students are no longer focusing their attention on the effort to fulfill their fundamental needs.

Realizing the significance of learning process and the chances of students who would find difficulties in that process, Faculty or School of Engineering (formerly known as Telkom Technological Institute, before joining Telkom University with other educational institutions under the *Yayasan Pendidikan Telkom/Telkom Educational Foundation*) implement a psychological assessment for all freshmen. The intention was to help students who find difficulties in their learning process through counseling. One of the assessments used is the DISC inventory. Through DISC, the grouping of personality preferences could be recognized as one of the informational resources relating to students' and others' self-awareness (Inscape Publishing, 1996). In addition to the acquired knowledge of each student's self-understanding, this knowledge of self-preference could be used by a counselor to adjust the approach towards students who are in need for counseling services.

DISC maps individuals into four types namely D (dominance), I (influence), S (steadiness), C (conscientiousness). After individuals fill up the DISC self-assessment form, three graphs can be obtained: Graph 1 (depicts individual perception towards expected environmental behavior), Graph 2 (behaviors that exist in stressful/tense conditions), and Graph 3 (individual perception towards itself/self style/self identity).

In this study, only the result from Graph 3 was used in accordance with the primary objective of the usage of DISC, specifically to develop students' self

awareness which is mainly used in career counseling or in counseling students who find difficulties in their studies. DISC is a popular instrument because it is simple, easy to use, and the result is easily understood (AM Azure Consulting, 2011). Individuals have to personally choose the statements that strongly depict them as well as the statements that poorly depict them so that the result would be true if individuals choose according to the real conditions as instructed. On the other side, the force choice method becomes one of DISC's limitations because it can generate wrong interpretations due to its dependence on the subjects' self-perception (Paltiel, 1986). Besides that, another limitation of DISC is the lack of peer review in scientific journals (AM Azure Consulting Ltd., 2011).

DISC is an instrument that explains how normal individuals' emotion is able to show different reactions to environment. The one that is measured is surface trait (behavior shown) and it is intended to explain how that thing could make individuals show different behaviors (Inscape Publishing, 1996). The main focus of DISC was the observed behavior that was used to explain, to understand the self and experience (Inscape Publishing, 2003). Basically, DISC measures how individual relates to others and to identify behavioral pattern displayed by individuals in a certain situation. It does not explain individual behavior in a deeper way like in a personality theory. Individuals in relation with environment would search and selectively display information that is rather consistent than inconsistent with their self-concept (Personality Insight, 2014).

**D (Dominance). Task oriented, fast paced.** Individuals classified in type D are active individuals. They shape the environment by overcoming obstacles to gain result. They display their characteristics as individuals who are: wanting to win, motivated by competition and success, accepting challenge, taking actions to achieve immediate result, assertive, demanding, confident, lacking in attention for others, and impatient.

**I (Influence). People oriented, fast paced.** Individuals classified in type I are individuals who use their ability to influence or to persuade others. These individuals are motivated by social acceptance/popularity and relation. They are enthusiastic and appear convincing.

**S (Steadiness). People oriented, even paced.** Individuals classified in this type are individuals who take stability and a harmonious environment as something important. Generally, they want to be a

part of a group, they are motivated to work together with group to finish tasks, and they like to help or to receive sincere appreciation.

**C (Conscientiousness). Task oriented, even paced.**

Individuals classified in this type emphasize the importance of working carefully to ensure the achievement of the quality of work and the accuracy of the result. They are motivated to gain knowledge, to show work skills and quality. The clarity of goals/results is important for these individuals.

DISC could also be used in educational context/environment. DISC types influence the performance in a Computer Programming Department (Blignaut & Naude, 2008). DISC could be used to gain a better understanding about the personality preference and students' needs (Personality Insight, 2014). According to the explanation of Wrench et al. (2001, pp. 44-47)

about the basic academic needs, and interpersonal/instructional needs from Hurt, Scott, and McCroskey (as cited in Wrench et al., 2001, pp 50-52), and also the explanation about DISC types' characteristics mentioned above, the writer would like to make a suggestion about the equality/compatibility between both, as listed in Table 1.

According to Rosenberg & Silvert (2013) effective communication in teaching-learning context could be achieved if the lecturers treat the students according to their needs. This teacher-oriented approach is the main concern of this study. The fact that lecturers are still the main resources for the students in the institution where the study took place (Nugraha, 2012), it is important for the lecturers to create an effort to stimulate the students to take more active roles and to be more independent in the learning process.

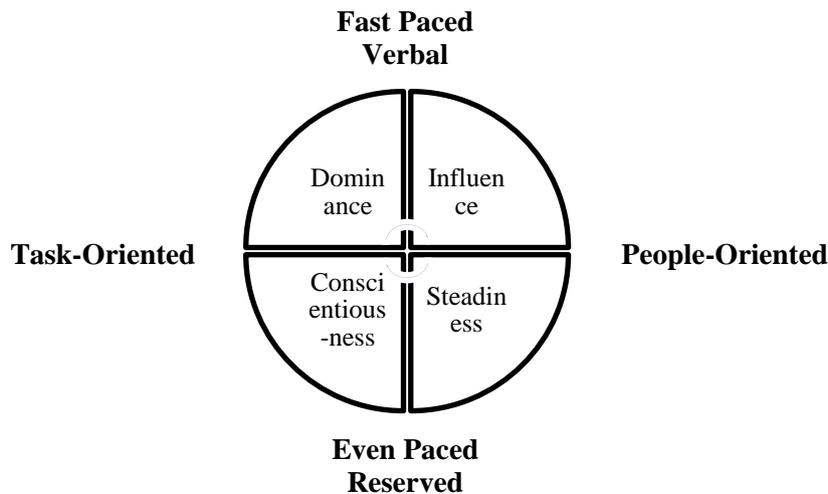


Figure 2. The Circumplex DISC Model (Inscape Publishing, 2007).

Table 1

*Suggestion of Compatibility Needs in Instructional Communication and DISC*

Basic academic needs	DISC type
1. needs to have an understanding of our instructional goals and objectives	D, C
2. needs to have a goal for each lesson we teach	D, C
3. Our instruction should match the students' cognitive development/potential and learning style	Learning pace, learning preferences (axis DISC)
4. need or desire to be active participants in the learning process.	I
5. A need to see how the content relates to their lives and pursue their own interests	S
6. the need to experience success in the classroom.	D
Interpersonal/instructional needs	
1. Control	D, I, C
2. Inclusion	S
3. Affection	S

Based on DISC types, lecturers need to pay attention to these things when they are teaching: (Rosenberg & Silver, 2013): (a) When they are teaching type D: to explain the importance of lesson and to connect the lesson in a specific context. Lecturers need to give the general overview; (b) When they are teaching type I: to make the learning process as something fun, to involve students/to be interactive. Lecturers need to use varying teaching styles and to give the opportunity of spontaneous activity; (c) When they are teaching type S: to connect learning topics with students' personal experience. Lecturers need to make a learning process as an emotional experience that is meaningful for them; (d) When teaching type C: to provide detailed, structured information about courses, and to deliver the lecture in a logical flow. Lecturers also need to provide supporting data and facts, and be ready to answer many questions.

One way to identify individual needs so that the communication process will be more effective is by doing the personality preference assessment by using DISC. For the record, the effort to identify lecturers' DISC types has ever been done at the request of a particular department in the Faculty of Engineering in 2011. However, this has not been a priority so that further actions concerning the importance of teaching-learning process have not been done. The most possible condition is to take advantage of the already scheduled assessment of the freshmen. DISC is a method to classify individual personality preference that was first introduced by William Marston in 1928 (Marston, 1928), and also an instrument that can quickly map individuals into four big groups of personality preference. DISC is shown so that individuals could acquire awareness about their behavior and others' behaviors in a specific context so that the established relations could be more effective. These four categories are acquired by considering the aspects of task-oriented versus people-oriented in the horizontal axis, also the tempo: fast paced versus slow paced in the vertical axis. Dominance is the combination of individuals with a fast pace & a task orientation. Influence is a combination of individuals with a fast pace & people orientation. Steadiness is a combination of individuals with a slow pace & a people orientation. Conscientiousness is a combination of individuals with a slow pace & task orientation.

The results of DISC were three profiles of personality preference as follows: in working situation, in stressful situation, and self-profile. Self-assessment of DISC can be done classically, and it only takes a relatively short time to complete so the result can be

immediately acquired. By considering the DISC, lecturers are hoped to adjust their methods for delivering materials/information by giving opportunities for all types of students to participate, learn, and succeed in the learning process. Classes will not be divided based on the DISC types, but the teaching methods will vary according to the DISC types in order to accommodate students' needs.

Considering the importance of communication role in teaching, it is critical to know the students' personality preference by using DISC, in order to increase the effectiveness of communication as well as teaching-learning process. Since 2009, DISC assessment has been conducted to all freshmen of the Faculty of Engineering at Telkom University, however the result has not been used specifically to facilitate the communication in classroom. To date, the result of DISC assessment has been more frequently used for counseling purposes, when students found difficulties during their study or needed help during career counseling.

This measurement is the responsibility of Career Development Center unit. The outline of DISC result and the results of its annual measurement were reported in written form to the institution. Given the fact that Career Development Center is only a supporting unit, not the main unit that carries out the core activities in the University; hence the result of DISC assessment has not been used for the teaching-learning process in classroom until the present time. The infrequent usage of DISC assessment results could also be caused by several factors as follows: it has not been prioritized (there are other priorities) as the current target of the University, or the benefit has not been felt or received directly by the whole institution. This study was conducted considering the large amount of data and its possible utilization that could help the teaching-learning process in the classroom.

## **The Aim of Research**

One of the aims of communication between lecturers and students is to enhance (to facilitate) the occurrence of a learning process. This study was limited to the lecturers' aspect as resources of information to facilitate the occurrence of effective communication in the learning process by paying attention to students' need in class. The aim of this study was to know the students' need in teaching-learning process in classroom, based on their DISC types.

Through the understanding of students' DISC types, it was hoped that the information will help lecturers

Table 2  
*DISC Reliability (Inscape Publishing, 1996, p. 7)*

DiSC Scale	Cronbach Alpha
D	.88
Di	.91
i	.91
iS	.88
S	.82
SC	.82
C	.80
CD	.75

to accommodate the teaching and communication methods with students who have different needs.

## Method

This study was a survey research (Marczyk, DeMatteo, & Festinger, 2005). A survey was conducted to as many students as possible inside the population. The population in this study was all the freshmen of Faculty of Engineering at Telkom University that were registered in the academic years of 2009 until 2012, 6999 students in total from 10 departments.

The people who eventually participated as samples were the freshmen who were present at the psychological assessment sessions on four periods of execution, which were conducted once a year since 2009 until 2012. Freshmen came from 10 departments totaling 6439 people (Table 4 and Table 5). Based on the sample selection procedure, this study was categorized as using a non-probability sampling technique, specifically using the convenience sampling (Stangor, 2011:113).

A little information about the changes that happened in the institutional level. The assessment of DISC had been done since 2009 until 2012, where the data retrieval was conducted at an educational institution named Telkom Technological Institute. As a result, administratively speaking, the population in this retrieval was all of the freshmen of Telkom Technological Institute. In the middle of 2013, the status of the institution was changed from Institute to University. This change was followed by the integration process with another educational institution, under the Telkom Educational Foundation. The result of the integration produced a new higher educational institution called Telkom University. This has brought a new consequence for Telkom Technological Institute, which was an independent educational institution, to become a faculty namely Faculty of Engineering at Telkom University. The change from institute to university

happened after the psychological assessment was done. As a result, the study would only use the DISC assessment result of Faculty of Engineering and it will not represent the DISC data of other faculties.

The measuring instrument that was used was DISC. This instrument was developed by Inscape Publishing. However, the result of the survey was not submitted to Inscape Publishing. The reason is because the assessment is not aimed to form norms or to be compared with the existing database of Inscape Publishing. In the self-assessment sheet of DISC, there are 24 small boxes and individuals were asked to circle one sign (+) besides a statement that represent them mostly and one sign (-) besides a statement that does not represent them mostly, in each of the small boxes. The example of DISC statement is presented in Tabel 3.

The DISC reliability is shown by the coefficient of Alpha Cronbach as follows. Besides that, the construct validity test shows that the relationship between scales on DISC supports the correlation pattern that was hypothesized by the DISC model (Inscape Publishing, 1996). Considering that the data are nominal data, the only descriptive statistics that could be used is the mode (Coolican, 1994).

## Results and Discussion

The processing of DISC self-assessment inventory towards freshmen above shows results as follows. From 6999 students of the population, 6439 students became the samples. Table 4 reveals that the total average of sample is 92% from all freshmen of the Faculty of Engineering at Telkom University that were registered in the ongoing years.

The entire sample per department in four years has reached more than 80% of the total students registered at each of the department. A sample this large (more than 80%) would show that the result is more accurate because the larger the sample, the higher the accuracy of the data provided (Singh, 2006).

Figure 2 shows that in the period of 4 years (2009-2012), the DISC profile of the Faculty of Engineering at Telkom University students with the highest percentage is consecutively shown as: type S (33%), type I (31%), type C (30%), and type D (6%).

Based on the educational level (Bachelor or Diploma), the trend would still be the same (Table 6), for the Diploma as well, the highest percentage is consecutively shown as: type S (33.6%), type I (30.5%), type C (29%), and type D (6.9%).

Table 3

*Example of DISC Statements (Copyrights of The Discovery Institute, 2005, cited from Discovery Personality Style Analysis from QQ International Indonesia)*

	Most	Least
Quiet, not talkative	+	-
Striving to achieve results	+	-
Easy to get along with new people	+	-
Attempting to please people	+	-

Table 4

*Percentage of Total Sample*

Year	Number of freshmen registered	Number of students attended the psychological assessment	Percentage (per class year)
2009	1845	1549	83.96%
2010	1454	1344	92.43%
2011	1738	1591	91.54%
2012	1962	1955	99.64%
Total	6999	6439	92.00%

After observing the same trend from the highest percentage that is consecutively shown as type S, I, C, and then D in two different levels of education, the Chi-Square assessment was also done to see whether a correlation exists between DISC types and educational level.

Table 7 reveals that value  $>$  significance value, so it can be stated that the educational level does not correlate with students' tendency of DISC types.

Figure 3 shows that in overall (4 years) as well as per year (2009 until 2012) the DISC profile is the same. From the highest, it is consecutively shown as S, I, C, and D. It means the basic academic needs as well as the interpersonal/instructional needs that should be fulfilled are relatively the same. For type S, the basic academic need that should be fulfilled based on the highest percentage of DISC profile is the need to know the relevance between lecture taught and their interests. The interpersonal/instructional need that should be fulfilled is inclusion and affection. They have the need to see the connection between the lesson learned and real life, to be given the chance to learn things that are related to their interests. Besides that, they also want to be recognized as part of a group and to be given attention (Wrench et al., 2001). According to Rosenberg & Silver (2013), lecturers need to relate the topics of lectures with the personal experience of type S students to make the learning process more meaningful. One of

the consequences of teaching 2009-2012 freshmen is that the lecturers need to be friendly and warm. The class environment is supposed to be made comfortable and conflict-free. During the lecture presentation, lecturers need to give the examples that are compatible with their students' experiences. This condition will require lecturers to broaden their knowledge about things that interest their students, as well as to understand the students' world besides the mastery of their lectures. Besides that, students could also be given assignments in small groups, in which the group members are selected by themselves so that they could choose the groups that will accept them in order to fulfill their need of affection.

For type I, the basic academic need that should be fulfilled is the need to be actively involved in the learning process, as well as the interpersonal/instructional need: control. Discussion or presentation in which they become the main actor (center of attention) as those who do the presentation in classroom, using the topic that they choose can be used as an alternative for teaching the students with this type. Besides that, simulation or game can also be used to facilitate students' active involvement in the learning process.

For type C, the basic academic need that should be fulfilled is the need to know the instructional aim as well as the aim of each of the subject (meeting). Their interpersonal/instructional need is control (Wrench et al., 2001). Students of this type need to know what is expected or the aim that would like to be achieved by learning a particular course or the subject discussed in each meeting. Rules and their consistency are also important. Therefore, it is better not to give them surprises or impromptu tasks. Even if there will be a pop quiz, it is better to inform them at the beginning that they will have a pop quiz assessment.

Information about SAP/LSU, class rules and their consequences are important to be communicated to this type of students. Feedback about what is not right or what should be fixed from their working results (tasks, quizzes, midterm exam, final exam) can help them to find a better way to understand the materials or to achieve the established aim. As a

consequence, lecturers need to be ready with the SAP/LSU, class rules, and the most important thing is to completely understand their own subject matter, owing to the fact that this type of students will ask more details. Every inconsistency, such as an unstructured delivery of the subject matter, can impede students from understanding the materials (Rosenberg & Silvert, 2013).

For the other DISC type, which is type D, there are many more requirements that must be met compared to the other types. The basic academic needs that should be fulfilled is to understand the learning aims, to know the target that should be achieved in each meeting, while their interpersonal/instructional needs are to gain successful experiences in classroom during the learning process, and also the need to show their influence to the environment (Wrench et al., 2001). Therefore during the first meeting, lecturers need to give the big picture of the course that will be learned, what is the benefit/what the students can achieve if they master the course, why is it important. Each time the material/sub-discussion is given, do not forget to explain the aims that are going to be attained or expected as well as the parameter of the

achievement. Giving individual tasks/examples/ exercises from the easier ones to the more difficult can give the students the experience of success. Tasks in small groups could also be given and type Ds could be selected as the leader of the group or as the ones who give explanation to their friends.

### Conclusion and Suggestions

From the result obtained, it can be known that DISC, in spite of all its limitations, could be used as one of the alternative ways to know students' need. This information is important for the continuity of communication in classroom that will affect the teaching-learning process. Students whose basic academic as well as the interpersonal/instructional needs are fulfilled could exert behaviors that are supporting the learning process (Hurt, Scott, & McCroskey (as cited in Wrench et al., 2001).

Lecturers who know what students need could exert teaching behaviors/methods that are suitable with the needs so that the communication process in classroom could run effectively. Students of course are not going

Table 5  
*Percentage of Sample Per Department*

Year	2009	2010	2011	2012	Total of freshmen registered per department	2009	2010	2011	2012	Total sum of students attended the psychological assessment per department	Percentage of sample per department 2009 until 2012
Department	Total of freshmen registered					Total of students attended the psychological assessment					
D3 T. Informatika	129	75	77	108	389	113	64	65	108	350	89.97%
D3 T. Telekomunikasi	171	116	131	108	526	139	103	122	108	472	89.73%
S1 Ilmu Komputasi	77	107	122	174	480	72	104	106	173	455	94.79%
S1 Sistem Informasi	153	127	165	192	637	128	117	155	190	590	92.62%
S1 Sistem Komputer	146	116	168	161	591	130	110	150	159	549	92.89%
S1 T. Elektro	143	99	120	157	519	120	91	114	156	481	92.68%
S1 T. Fisika	58	77	76	100	311	47	71	66	100	284	91.32%
S1 T. Industri	254	269	251	307	1081	219	242	232	307	1000	92.51%
S1 T. Informatika	376	205	288	319	1188	317	184	263	319	1083	91.16%
S1 T. Telekomunikasi	338	263	340	336	1277	264	258	318	335	1175	92.01%

to be divided into classes based on their DISC types. This information about students' needs is going to be used only as guidance about the alternative ways for delivering teaching materials that are adjusted according to students' DISC types. Lecturers at least know the alternative ways to deliver materials to students with four types of DISC inside the classroom.

The way that will be used more often or that is more effective depends mostly on which type exists in the largest number in the classroom. From the results of DISC assessments in four years, the types that have been commonly found were type I, S, and

C. It seems that the problem is the preparation of four different types of teaching methods that lecturers need to prepare for a subject matter in order to accommodate students' need according to the four types of DISC. The most possible thing to do is for lecturers to choose, based on the feedback or prior teaching evaluation about which topics are more proper to be shared in particular methods as well as to pay attention to students' need. In order to assess the real benefit from the information about students' basic academic needs as well as instructional needs based on the study result, a further study about the

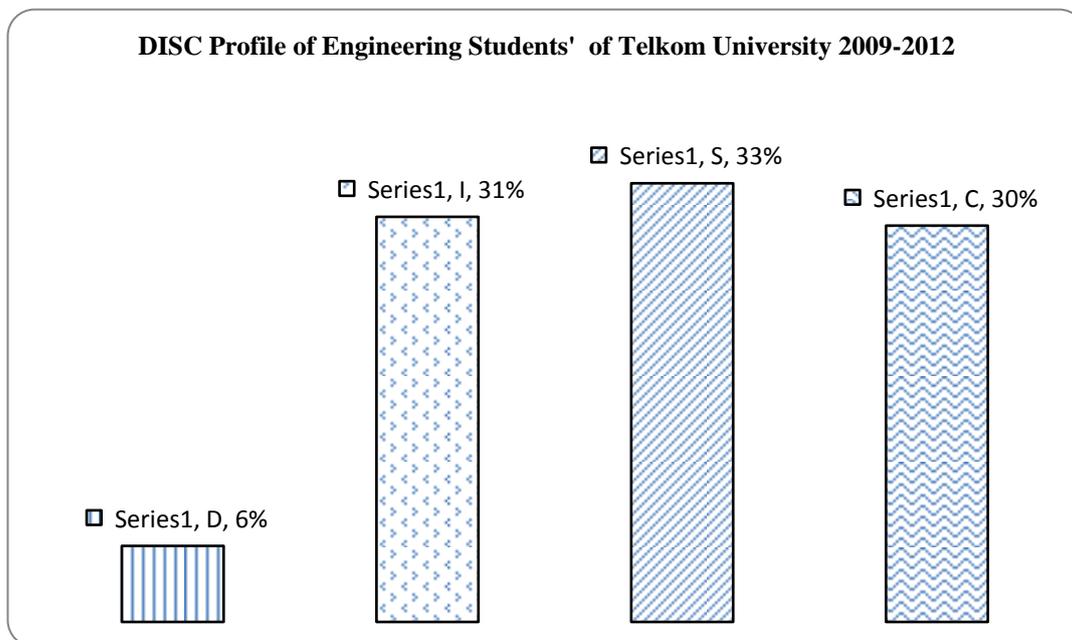


Figure 2. The DISC graphic profile of Telkom University Engineering students 2009-2012.

Tabel 6  
Cross-tabulation of Educational Level and DISC

			DISC				
			D	I	S	C	Total
Education Level	Diploma	Number	57	251	276	238	822
		% (Educational Level)	6.9%	30.5%	33.6%	29.0%	100.0%
		% (DISC)	15.3%	12.7%	12.9%	12.3%	12.8%
	Bachelor	Number	315	1731	1869	1702	5617
		% (Educational Level)	5.6%	30.8%	33.3%	30.3%	100.0%
		% DISC	84.7%	87.3%	87.1%	87.7%	87.2%
Total	Number		372	1982	2145	1940	
	% (Educational Level)		5.8%	30.8%	33.3%	30.1%	
	% (DISC)		100.0%	100.0%	100.0%	100.0%	

Table 7  
Chi-Square Tests

	Value	df	Asymp. (2-sided)	Sig. Sig.	Monte Carlo Sig. (2-sided) 95% Confidence Interval	
					Lower Bound	Upper Bound
Pearson Chi-Square	2.654 <sup>a</sup>	3	.448	.443 <sup>b</sup>	.430	.455
Likelihood Ratio	2.545	3	.467	.469 <sup>b</sup>	.457	.481
Fisher's Exact Test	2.669			.440 <sup>b</sup>	.428	.452
N of Valid Cases	6439					

Note. (a) 0 cells (.0%) have expected count less than 5. The minimum expected count is 47.49. (b) Based on 6439 sampled tables with starting seed 957002199.

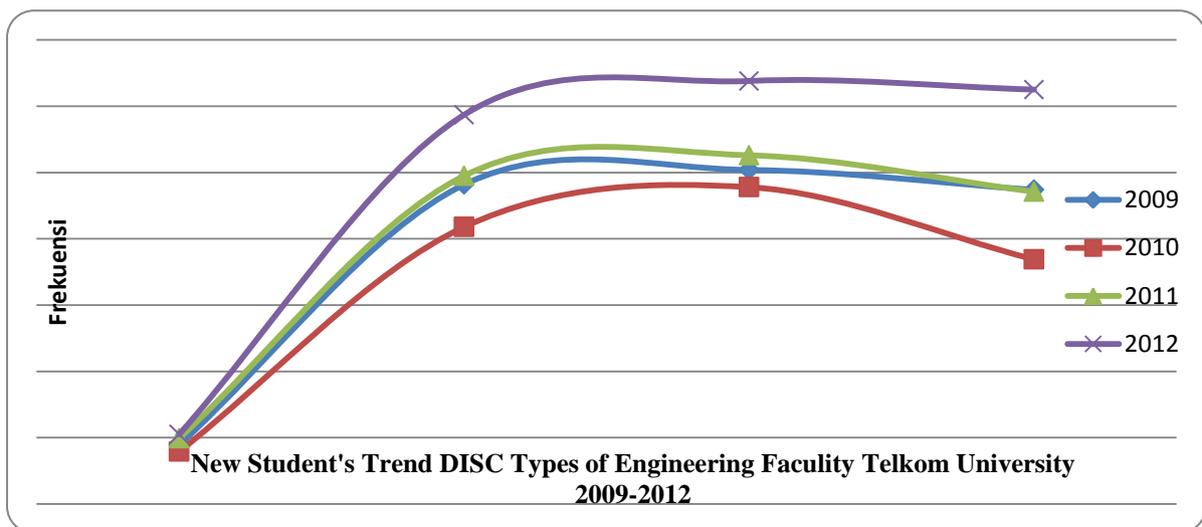


Figure 3. DISC Profile of Telkom University Engineering students 2009-2012.

application inside the classroom can be conducted. Besides that, DISC types information could also be used to expedite the virtual team (Duck, 2006) if the educational institution is also using the e-learning method.

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