Examining the Issue of Academic Plagiarism: What Do Faculty at AURCO Affiliated Institutions Know about Plagiarism?

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Abstract

Plagiarism is a serious, complex problem for university undergraduate and graduate students to face. This survey study, conducted at Wright State University Lake Campus, examined the confidence and ability of faculty members to detect plagiarism using a plagiarism detection survey published in 2008 (Hochstein, Brewer, Steinke, & Taylor). High confidence and high ability for detecting plagiarism were found for faculty.

Introduction

In 2007, a survey was given to Lake Campus students to assess their confidence and ability to identify plagiarism. The results from this survey demonstrated a high degree of confidence in student ability to detect plagiarism, with a low degree of ability to actually detect plagiarism (Hochstein, et al., 2008).

The current research built on that initial pilot study by examining the confidence and ability of faculty members to detect plagiarism using the same basic measures used for the students. High correspondence between confidence and ability is expected for faculty, and if found will help validate the use of our survey materials.

Low correspondence between confidence and ability for faculty would be surprising, but such an outcome would be a clear impetus for better skill training for faculty and/or re-writing of the survey materials. In either case, this project will also help to increase the visibility of the problem of detecting plagiarism within our academic community.

The project was also conducted to demonstrate to students in the Wright State University Lake Campus Psychology Club and forthcoming Psychology Research Methods courses about the difficulties inherent in writing and conducting survey research. The current study will also be used to help refine the methodology for future studies in this field.

Method

Participants

A total of 1688 faculty members at AURCO (Association for University Regional Campuses of Ohio) affiliated two-year universities were sent email invitations to participate in the survey. See Table 1 for the number of faculty sent emails within those universities. Of those, 70 started the survey and 42 completed the survey. See Table 2 for breakdown of participant rank and Table 3 for breakdown of participant department.

Table 1. Characteristics of Participating AURCO Affiliated Universities

School Name	n^a
Bowling Green State University - Firelands	55
Kent State University - Ashtabula	48
Kent State University – East Liverpool	71
Kent State University – Geauga	23
Kent State University – Salem	44
Kent State University – Stark	91
Kent State University – Trumbull	54
Kent State University – Tuscarawas	44
Miami University – Hamilton	88
Miami University – Middletown	178
Ohio State University – Agricultural Technical Institute	54
Ohio State University - Lima	66
Ohio State University -	83

Mansfield	
Ohio State University - Marion	101
Ohio State University - Newark	87
Ohio University - Chillicothe	48
Ohio University – Eastern	33
Ohio University - Lancaster	55
Ohio University - Southern	33
Ohio University - Zanesville	61
University of Akron - Summit	79
University of Akron - Wayne	71
University of Cincinnati - Clermont	74
University of Cincinnati – Raymond Walters	147

Note. No faculty at Wright State University – Lake were sent email invitations nor were they allowed to participate to prevent conflicts of interest. [a]Numbers of faculty members sent email invitations to participate.

Table 2. Summary of Percentage of Correct Responses Based on Faculty Rank

Rank	*n*	Correctly Identified Non-Plagiarism	Correctly Identified Plagiarism	Overall Correct Identification
Adjunct	1	100%	80%	88%
Lecturer	16	89%	71%	77%
Instructor	2	83%	90%	88%

Assistant Professor	8	92%	78%	83%
Associate Professor	13	95%	58%	78%
Full Professor	2	100%	10%	44%

Table 3. Summary of Percentage of Correct Responses Based on Faculty Department

Department	*n*	Correctly Identified Non-Plagiarism	Correctly Identified Plagiarism	Overall Correct Identification
Engineering/Comp Sci	1	83%	90%	88%
Science and Math	6	92%	78%	83%
Education	4	83%	80%	81%
Liberal Arts	25	71%	92%	79%
Nursing and Health	2	92%	70%	78%
Business	4	100%	30%	56%

Materials

The plagiarism detection survey consisted of two parts. The first was a brief demographics survey and the second was the plagiarism detection survey (Hochstein, et al., 2008). Both parts were available to participants through the website *Survey Monkey* (http://www.surveymonkey.com), which allows for data to be collected with anonymity. There was no collection of university affiliation, name, IP address, email address, or individual characteristics such as age or gender. *Survey Monkey* was also used to obtain informed consent and to provide debriefing.

The demographics survey required participants to indicate their rank, their department, and to answer four brief questions about their knowledge of citing sources and how they approach the issue of plagiarism with students. That was the extent of personal data collected (See Appendix A for a copy of this survey).

The plagiarism detection survey (Hochstein, et al., 2008) was based heavily on the work of Theodore Frick (2005). It consists of 16 passages of text, with a possible example of a plagiarized version of that text following each passage. Faculty had to determine for which of these examples plagiarism had occurred. Of the 16 passages, five were followed by

examples of direct plagiarism (where portions of the original passage were copied without citing the original author and/or without putting the copied material within quotes). An additional five were followed by examples of indirect plagiarism (through paraphrasing without citing the original author). The remaining six passages were not examples of plagiarizing. A full copy of the survey can be found in Appendix B.

Design and Procedure

Faculty were contacted with an initial email and were sent an additional two reminder emails. Faculty who followed the Internet link to the survey first indicated that they read the consent form, and then completed the demographic survey, followed by the plagiarism detection survey. This was followed by a debriefing reminding them of the difficulty involved in identifying plagiarism and providing them with a reminder that students may need additional training for detecting plagiarism even if the students do not think that is true.

Faculty participation was rewarded with an entry into a random drawing for *Amazon.com* gift certificates. Once participants started the survey, they were given a code word and the address of a second *Survey Monkey* survey. The same code-word "Plagiarism" was given to all participants. This second survey was available one week after the first emailed invitations were sent. This delay in timing was intended to further increase the anonymity of responders. This second survey collected email addresses from those who gave the correct code word. These email addresses were used only in a drawing for randomly selected participation prizes. This second survey was made available for one month after the second reminder email was sent. *Amazon.com* gift certificates ($175, $100, $25) were then given to three randomly chosen submitters to this final survey.

Results

When asked if they understood when it was necessary to list their sources, 98% indicated they did. When asked if they understood how to list their sources, the same 98% indicated that they did. Unfortunately, the unequal distribution of participants' ranks and departments prevented a meaningful analysis of the breakdown of responses to the questions related to requiring their students to submit papers in APA or MLA style or the frequency of discussing plagiarism with their students. In addition, it also prevented a meaningful comparison of plagiarism detection between faculty of different ranks or of different departments.

When tested on their understanding, however, none of the participants correctly identified the plagiarism status of all 16 passages. The fifteen most accurate participants correctly identified 14 of the 16 (88%) passages. On average, passages were correctly identified 78% of the time. The average rate of identification of non-plagiarized passages was higher (92% accuracy) than that of plagiarized passages (70%). The average rate of identification was higher for direct copying (85%) than it was for paraphrased or reworded material (71%).

Discussion

The results of the current study provide an initial measure of how faculty members understand plagiarism and how this differs from how students understand plagiarism. Compared to the Hochstein et al. 2008 study, faculty were much better at identifying plagiarized passages (70%) than were students (48%). In addition, faculty members in the current study (71%) were much better at identifying paraphrased or reworded plagiarism than students (37%) in 2008. These differences are in contrast to the similarity of faculty members' confidence in their ability to detect plagiarism (98%) and students' confidence in knowing when to cite sources (95%). These results may not be directly comparable, as the incentives used for participants were not the same across studies, but the plagiarism questionnaire did use the same questions for all participants. In general then, these results suggest a much higher correspondence between confidence and ability for faculty members than for students.

The rates of plagiarism detection in faculty were not 100%. Faculty identified 70% of plagiarized passages and 71% of paraphrased or reworded plagiarism. This indicates that plagiarism detection is not just difficult for students, but can also be difficult for faculty that grade those students. Non-commercial online resources for faculty members can be found on university web-sites such as those offered by Cincinnati University (Academic Integrity Committee, 2012) or Purdue University (Stolly, Brizee, & Paiz, 2012). Commercial online resources are also available for faculty and students to help with plagiarism detection. As an example, Turnitin.com (http://turnitin.com) allows educators and students to submit written work for originality, as well as offering webcasts and rubrics for assessing student writing (e.g. Stephens & Chu, n.d.).

Of course, the lack of perfect plagiarism prediction rates could also be due to problems with the plagiarism survey itself. Feedback from participants indicated that faculty members found the plagiarism survey to

be quite lengthy. In the future, a possibility will be to determine if the results found in the current study can be replicated with a shortened survey. In addition, shortening some of the questions may also be of benefit. Streamlining in this manner would conceivably increase the number of responses, and potentially reduce the number of responses made in error because of the tediousness of the task.

In conclusion, the current study suggests that faculty are more apt to correctly identify plagiarism than students. It also provides the impetus for improving upon the plagiarism detection survey, to make it more useable in future research.

References

Academic Integrity Committee (January 2012). *Plagiarism: Prevention and Detection Strategies.* Retrieved from http://www.libraries.uc.edu/help/faculty/plagiarism.html

Frick, T. (2005, June 21). *How to Recognize Plagiarism*: *Examples.* Retrieved from https://www.indiana.edu/~istd/examples.html

Hochstein, D. D., Brewer, J., Steinke, M. D., & Taylor, J. D. (Spring 2008). Examining the issue of academic plagiarism: What do students at Wright State University Lake Campus know about plagiarism? *The AURCO Journal, 14,* 59 – 81.

Stolley, K., Brizee, A., & Paiz, J. M. (May 2012). Purdue OWL: Avoiding Plagiarism. Retrieved November 12, 2012, from http://owl.english.purdue.edu/owl/resource/589/01/

Stephens, J. M., & Chu, J. (Presenters). *Why Students Plagiarize (30-Minute Webcast Series)*. Retrieved November 12, 2012, from http://pages.turnitin.com/Plagiarism_45_ archive.html

Appendix A

Demographics Survey

From the following, choose the term that best describes your current rank. Research Assistant, Teaching Assistant, Fellow, Adjunct, Instructor, Lecturer, Visiting Professor, Assistant Professor, Associate Professor, Full Professor.

From the following, choose the department classification that best describes your current affiliation. Business, Education, Engineering-Computer Science, Liberal Arts, Nursing and Health, or Science and Mathematics.

Do you understand when it is necessary to list your sources? (Y/N answer only)

Do you understand how to list your sources? (Y/N answer only)

Do you require your students to submit papers in APA or MLA style? (Select one)

Regularly Often Sometimes Seldom Never

Do you address the issue of plagiarism with your students? (Select one)

Regularly Often Sometimes Seldom Never

Appendix B

1. Original Source Material: Technology has significantly transformed education at several major turning points in our history. In the broadest sense, the first technology was the primitive modes of communication used by prehistoric people before the development of spoken language. Mime, gestures, grunts, and drawing of figures in the sand with a stick were methods used to communicate -- yes, even to educate. Even without speech, these prehistoric people were able to teach their young how to catch animals for food, what animals to avoid, which vegetation was good to eat and which was poisonous.	Source: Frick, T. (1991). *Restructuring education through technology*. Bloomington, IN: Phi Delta Kappa Educational Foundation.

1. Student Version: In examining technology, we have to remember that computers are not the first technology people have had to deal with. The first technology was the primitive modes of communication used by prehistoric people before the development of spoken language.

1. Is the student's version plagiarized? Y N

2. Original Source Material: Constructivism is a movement that extends beyond the beliefs of the cognitivist. It considers the engagement of students in meaningful experiences as the essence of learning. The shift is from passive transfer of information to active problem solving. Constructivists emphasize that learners create their own interpretations of the world of information.	Source: Heinich, R., Molenda, M., Russell, J. D., & Smaldino, S. E. (1999). *Instructional media and technologies for learning.* Upper Saddle River, NJ: Prentice-Hall.

2. Student Version: Constructivists do not hold views entirely opposed to those of the cognitivists. The position of constructivists "... extends beyond the beliefs of the cognitivist" (Heinich, Molenda, Russell, & Smaldino, 1999, p. 17).
References: Heinich, R., Molenda, M., Russell, J. D., & Smaldino, S. E. (1999). *Instructional media and technologies for learning.* Upper Saddle River, NJ: Prentice-Hall.

2. Is the student's version plagiarized? Y N

3. Original Source Material: The concept of systems is really quite simple. The basic idea is that a system has parts that fit together to make a whole; but where it gets complicated -- and interesting -- is how those parts are connected or related to each other.	Source: Frick, T. (1991). R*estructuring education through technology.* Bloomington, IN: Phi Delta Kappa Educational Foundation.

3. Student Version: A system has parts that fit together to make a whole, but the important aspect of systems is how those parts are connected or related to each

other (Frick, 1991). References: Frick, T. (1991). R*estructuring education through technology.* Bloomington, IN: Phi Delta Kappa Educational Foundation.

3. Is the student's version plagiarized? Y N

4. Original Source Material: Theories differ from philosophies and models of teaching. A philosophy is a value system, whereas a theory seeks to explain real-world events and can be certified through scientific investigation. Models of teaching are approaches to the management of some aspect of classroom instruction and they may not be independent of subject area, grade level, age of the student, or the setting for learning. A characteristic of learning theories is that they address the underlying psychological dynamics of events. Thus, they provide a mechanism for understanding the implications of events related to learning in both formal and informal settings.	Source: Gredler, M. E. (2001). *Learning and instruction: Theory into practice* (4th ed.). Upper Saddle, NJ: Prentice-Hall.

4. Student Version: Theories and philosophies are different from each other because theories seek to explain real-world events and can be certified through scientific investigation. Learning theories address the underlying psychological dynamics of events, so they provide a mechanism for understanding the implications of events related to learning in both formal and informal settings.

4. Is the student's version plagiarized? Y N

5. Original Source Material: An important characteristic of instructional-design theories is that they are design oriented (or goal oriented). This makes them very different from what most people usually think of as theories. Theories can be thought of as dealing with cause-and-effect relationships or with flows of events in natural processes, keeping in mind that those effects or events are almost always probabilistic (i.e., the cause increases the chances of the stated effect occurring) rather than deterministic (i.e., the cause always results in the stated effect).	Source: Reigeluth, C. M. (1999). What is instructional design theory and how is it changing? In C. M. Reigeluth (ed.), *Instructional-design theories and models volume II: A new paradigm of instructional theory,* (pp. 1-29). Mahwah, NJ: Lawrence Erlbaum Associates.

5. Student Version: Reigeluth (1999) states that we can think of theories "... as dealing with cause-and-effect relationships or with flows of events in natural processes," and goes on to say that they may be either "probabilistic (i.e., the cause increases the chances of the stated effect occurring) rather than deterministic (i.e., the cause always results in the stated effect)" (p. 7).
References: Reigeluth, C. M. (1999). What is instructional design theory and how is it changing? In C. M. Reigeluth (ed.), *Instructional-design theories and models volume II: A new paradigm of instructional theory,* (pp. 1-29). Mahwah, NJ: Lawrence Erlbaum Associates.

5. Is the student's version plagiarized? Y N

6. Original Source Material: Developing complex skills in the classroom involves the key ingredients identified in teaching pigeons to play ping-pong and to bowl. The key ingredients are: (1) inducing a response, (2) reinforcing subtle improvements or refinements in the behavior, (3) providing for the transfer of stimulus control by gradually withdrawing the prompts or cues, and (4) scheduling reinforcements so that the ratio of reinforcements in responses gradually increases and natural reinforcers can maintain their behavior.	Source: Gredler, M. E. (2001). *Learning and instruction: Theory into practice* (4th ed.). Upper Saddle, NJ: Prentice-Hall.

6. Student Version: Inducing a response, providing for the transfer of stimulus control by gradually withdrawing prompts or cues, reinforcing subtle improvements in the behavior, and scheduling reinforcements so that natural reinforcers can maintain their behavior are the key ingredients identified both in teaching pigeons to play ping-pong and in developing complex skills in the classroom.
References: Gredler, M. E. (2001). *Learning and instruction: Theory into practice* (4th ed.). Upper Saddle, NJ: Prentice-Hall.

6. Is the student's version plagiarized? Y N

7. Original Source Material: During the last decade, there has been a shift from "instructivist" approaches towards "constructivist" approaches in the field of instructional design. Instructivist approaches reflect the belief that the role of knowledge is basically to represent the real world. Meaning is eventually determined by this real world and [is] thus external to the understander.	Source: Merriënboer, J. J. van. (1997). *Training complex cognitive skills.* Englewood Cliffs, NJ: Educational Technology

	Publications.

7. Student Version: Over the last ten years, there has been a marked change from "instructivist" points of view to "constructivist" points of view among instructional designers. Instructivist points of view hold the belief that the role of knowledge is fundamentally to represent the real world. In this view, meaning is determined by the real world and is therefore external to the learner.
References: Merriënboer, J. J. van. (1997). *Training complex cognitive skills.* Englewood Cliffs, NJ: Educational Technology Publications.

7. Is the student's version plagiarized? Y N

8. Original Source Material:
Assess: determine the *value* of one or more *properties* of some *entity*. Cognitive Assessment: the entity is a person's state of mind, and the property concerns what he or she does or does not know. Since mental states cannot be directly observed, we need to plan stimulus situations and observe responses of persons (i.e., test them).
 	
Plan stimulus situations:
 	
• Does the assessment *match* the learning objective? (See Mager book, *Measuring Instructional Results.*)
• Is it safe to infer from the behaviors observed, and in the context observed, that the learner does or does not have the cognitive property?
  ○ Is it possible that the learner could have this property and *not* be able to perform successfully?
  ○ Is it possible that the learner could *not* have this property and yet be able to perform successfully?
  ○ In other words, is the assessment *valid* in terms of its congruence with the property under consideration?
	Source: Frick, T. (1997). Assessment. Bloomington, IN: Indiana University School of Education, unpublished lecture notes.

8. Student Version: Frick (1997) explains that in order to do cognitive assessment, we need to create observable situations in which we can infer learning achievement. This is necessary since we cannot read people's minds directly. The observable situations need to be congruent with instructional objectives, such that valid inferences can be made concerning learning achievement, according to Frick.

References: Frick, T. (1997). Assessment. Bloomington, IN: Indiana University School of Education, unpublished lecture notes.

8. Is the student's version plagiarized? Y N

9. Original Source Material: ... constructivist theory rests on the assumption that knowledge is constructed by learners as they attempt to make sense of their experiences. Learners, therefore, are not empty vessels waiting to be filled, but rather active organisms seeking meaning. Instead, knowledge must develop and continue to change with the activity of the learner. It seems clear from remarks of constructivist researchers that constructivist learning goals are best met through a variety of instructional conditions that differ from any proposed by theorists like Gagné.	Source: Driscoll, M. P. (2000). *Psychology of learning for instruction* (2nd ed.). Needham Heights, MA: Allyn & Bacon.

9. Student Version: The basic tenet of constructivism holds that learners themselves construct knowledge, rather than receive it from outside themselves. The instructional conditions for learning proposed by Gagne do not support the kind of learning assumed by the constructivists.

References: Driscoll, M. P. (2000). *Psychology of learning for instruction* (2nd ed.). Needham Heights, MA: Allyn & Bacon.

9. Is the student's version plagiarized? Y N

10. Original Source Material: Technology has significantly transformed education at several major turning points in our history. In the broadest sense, the first technology was the primitive modes of communication used by prehistoric people before the development of spoken language. Mime, gestures, grunts, and drawing of figures in the sand with a stick were	Source: Frick, T. (1991). *Restructuring education through technology*. Bloomington, IN:

methods used to communicate - yes, even to educate. Even without speech, these prehistoric people were able to teach their young how to catch animals for food, what animals to avoid, which vegetation was good to eat and which was poisonous.	Phi Delta Kappa Educational Foundation.

10. Student Version: History has demonstrated that technology affects education profoundly. Considering the definition of technology broadly, one may say that prehistoric people used primitive technologies to teach skills to their young (Frick, 1991).

10. Is the student's version plagiarized? Y N

11. Original Source Material: A naïve mental model in the context of computer programming is that a computer is an intelligent system, and that giving directions to a computer is like giving directions to a human being.	Source: Merriënboer, J. J. van. (1997). *Training complex cognitive skills.* Englewood Cliffs, NJ: Educational Technology Publications.

11. Student Version: One kind of mental model for the computer is the naïve model. According to van Merriënboer (1997), "A naïve mental model in the context of computer programming is that a computer is an intelligent system, and that giving directions to a computer is like giving directions to a human being" (p. 145).

References: Merriënboer, J. J. van. (1997). *Training complex cognitive skills.* Englewood Cliffs, NJ: Educational Technology Publications.

11. Is the student's version plagiarized? Y N

12. Original Source Material: In the traditional behavioral paradigm, feedback is the consequence of a response, typically reinforcement for an appropriate behavior.	Source: Driscoll, M. P. (2000). *Psychology of learning for instruction* (2nd ed.). Needham Heights, MA: Allyn & Bacon.

12. Student Version: Feedback is not conceived of identically between the various schools of thought in instruction. In the traditional behavioral paradigm, feedback is the consequence of a response. That response is typically reinforcement for an appropriate behavior.

12. Is the student's version plagiarized? Y N

13. Original Source Material: Instructional design theory requires at least two components: methods for facilitating human learning and development (which are also called methods of instruction), and indications as to when and when not to use these methods (which I call situations). Although the term "context" has a similar meaning in lay language and is often used in education, not all aspects of the context influence which methods should be used. Therefore, I use the term "situation" to refer to those aspects of the context that do influence selection of methods.	Source: Reigeluth, C. M. (1999). What is instructional design theory and how is it changing? In C. M. Reigeluth (Ed.), *Instructional-design theories and models volume II: A new paradigm of instructional theory.* Mahwah, NJ: Lawrence Erlbaum Associates.

13. Student Version: Two components must be present in an instructional design theory. The first component is methods for facilitating human learning and development. The second is those aspects of the context that do influence selection of methods, or the situation.
References: Reigeluth, C. M. (1999). What is instructional design theory and how is it changing? In C. M. Reigeluth (Ed.), *Instructional-design theories and models volume II: A new paradigm of instructional theory.* Mahwah, NJ: Lawrence Erlbaum Associates.

13. Is the student's version plagiarized? Y N

14. Original Source Material: At this stage the reading strategy adopted by the reader depends on the particulars of the task. The tendency to 'get on with it' seems firmly established in users of manuals and the present sample reported moving freely from manual to system in order to achieve their goal. Only three readers manifested any tendency to read around an area or fully read a section before moving on and even these admitted that they would be tempted to skim, and tend to get bored if they felt that they were not resolving their problems and only read complete sections if all else failed.	Source: Dillon, A. (1994). *Designing usable electronic text: Ergonomic aspects of human information usage.* London: Taylor & Francis.

14. Student Version: The readers of technical documentation manuals do not read those manuals in linear order. They are impatient to be about their work, jump from the text to the task and back, and only stop to read in-depth if they have no other choice.

References: Dillon, A. (1994). *Designing usable electronic text: Ergonomic aspects of human information usage.* London: Taylor & Francis.

14. Is the student's version plagiarized? Y N

15. Original Source Material: While computers are very good at certain tasks, such as diagnosing equipment malfunctions or performing mathematical functions, they are morons at doing things your dog or cat can do, such as recognizing you and acknowledging your presence. Computers lack qualitative intelligence, that is, the ability to identify those features that make each of us unique and different.	Source: Frick, T. (1991). *Restructuring education through technology.* Bloomington, IN: Phi Delta Kappa Educational Foundation.

15. Student Version: Computers can do some things and not others. They do not have the ability to identify those features that make each of us unique and different, but they are very good at diagnosing equipment malfunctions or performing mathematical functions.

References: Frick, T. (1991). *Restructuring education through technology.* Bloomington, IN: Phi Delta Kappa Educational Foundation.

15. Is the student's version plagiarized? Y N

16. Original Source Material: Media experiences equal human experiences.... People's responses show that media are more than just tools. Media are treated politely, they can invade our body space, they can have personalities to match our own, they can be a teammate, and the can elicit gender stereotypes. Media can invoke emotional responses, demand attention, threaten us, influence memories, and change ideas of what is natural. Media are full participants in our social and natural world.	Source: Reeves, B., & Nass, C. (1996). *The media equation: How people treat computers, television, and new media like real people and places.* Cambridge, MA: Cambridge University Press.

16. Student Version: Reeves and Nass (1996) describe many experiments they have carried out to test the theory that people interact with media as if it were other people. They have shown in multiple ways that even when people know objectively that images of people on television screens are not real, or that computers are machines instead of human beings, we treat these things as if they were real -- were human.

References: Reeves, B., & Nass, C. (1996). *The media equation: How people treat computers, television, and new media like real people and places.* Cambridge, MA: Cambridge University Press.

16. Is the student's version plagiarized? Y N

Answer Key (Y = yes for plagiarized. N = no for not plagiarized.)

1. Y	2. N	3.Y	4. Y	5. N
	6.Y			
7. Y	8.N	9. N	10. Y	11.
N	12.Y			
13. Y	14. Y	15.Y	16. N	