A CRITIQUE OF AN EXPERIMENTAL PROJECT

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Abstract
This article aims to give a critique to an experimental project according to the published research paper based on it. The project is analyzed in terms of the factors involved in a formal experimental research such as research question, hypothesis, research process, contexts, subjects, materials, treatment, data, data analysis, conclusion and application value. Comments are made upon these aspects of the project with reference to the related norms and criteria of experimental research in ELT and suggestions concerning certain specific conductions are also provided.

As early as in 1998 collected statistics showed that among the published research papers written by Chinese foreign language researchers and teachers in China those about teaching only accounted for a very small percentage. And among the research papers about teaching the percentage of those having research data or statistics is only 15%. Wang 1998, 43; Liu 1999, 12 pointed out that the descriptive and positive research on the native languages must be based on data or statistics; however, 80% of the researches are not conducted in this way.

With more and more frequent exchange of educational and academic programs between China and western countries, the Chinese foreign language researchers and teachers are making efforts to bring themselves to the track of international norms and standards. We are glad to have seen more and more positive research papers published in such journals as Foreign Language Teaching and Research, Foreign Language World, Journal of PLA Foreign Studies University and Teaching English in China, an English language teaching research journal jointly run by Foreign Language Teaching and Research Press in China and the British Council. In the book Positive Research of English Learning Strategies, Wen Wang 2003, the editors collected 32 positive research papers from the key foreign language teaching and research journals in China. All these papers have research data or statistics to support their arguments. They are considered by the editors to have high academic significance and value.

Although we can see more such research papers appearing in certain journals, some of the researches have not been carried out in accordance with the research norms. When reading the research papers in the journal Teaching English in China, the author found that even though some authors claim that their researches are experimental or of other kinds of research approaches in their papers no data or statistics can be found let alone data analysis or research findings. In this essay a research paper published in the journal Teaching English in China, Vol. 23, No. 4, pp. 67-74 is analyzed and examined with reference to the related approach.

Introduction of the experimental project

The experiment was conducted by the author who teaches a group of sophomore English majors Intensive Reading course. It lasts for one term. Provided by the teacher with topics related to the texts and social issues which the students are supposed to have interest in, the students are required to search for related materials and read them and prepare cooperatively within each group for their presentations in different ways as indicated. The students must finish all the preparatory work by themselves outside class and finally do the presentations. The presentations are given in class with students.
Critique of the experimental project

Type of experiment [research question] hypotheses and research process

An experimental study is a study in which the researcher manipulates one or more independent variables and measures their effect[s] on one or more dependent variables while controlling the effect of extraneous variables

Wen 2001 [145]

Although the author claims it is an “experimental project” by considering the whole study report and checking it against the clarification of experimental studies it is hard to decide which type this project belongs to. There is only an experimental group and treatment to the experiment group but no control group [no pre and post measurement and no random assignment of subjects]

If a teacher intends to carry out an experimental research to prove the effect of the application of a new teaching approach [he should at least choose two groups] one as the experimental group and the other as the control group. Then the particular teaching approach is the independent variable and the result brought by the approach through standardized measurement is the dependent variable. Those factors irrelevant with the application of the particular teaching approach are called extraneous variables. In natural sense the extraneous variables must be put under strict control during the process of research in order to make the result true and convincing.

An ideal experimental research is usually infeasible since there are great difficulties in assigning subjects to experimental and control groups. Thus most experiments carried out by language teaching researchers are not true experiments. They should be called pre experiments or quasi experiments. Their characteristics are shown respectively in the following table

<table>
<thead>
<tr>
<th>Type</th>
<th>Characteristics</th>
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<tbody>
<tr>
<td>Pre-experiment</td>
<td>May have pre and post treatment tests but lacks a control group</td>
</tr>
<tr>
<td>Quasi-experiment</td>
<td>Has both pre and posttests and experimental and control groups but no random assignment of subjects</td>
</tr>
<tr>
<td>True experiment</td>
<td>Has both pre and posttests and experimental and control groups and random assignment of subjects</td>
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Nunan 2002 [41]

Though there is difficulty in conducting a true experiment at least this project can be designed into a quasi-experiment. The researcher can choose one of the existing parallel classes as the control group and conduct a pretest and a posttest for the two comparison groups to see what differences the independent variable can bring about. Only experimental group treatment and descriptive analysis cannot make the research result convincing. The researcher only focuses on the process of the practice or the student autonomy itself but does not include the result the practice has generated which should be produced in the form of data. Remarks like “students enjoyed the project enormously and benefited a lot” are not only too general or even empty but also have nothing to do with the expected result the experiment is supposed to produce. Whether the research project is a success or not does not depend on the researcher descriptive remarks. Data are required as far as experimental research is concerned and they speak louder than words.

Student autonomy is indeed a hot topic in foreign language education at present in China. How students autonomy may affect their learning outcomes is a worthy question to do research on. But the researcher doesn’t seem to have stated clearly the research question and hypotheses at the beginning of the report. Since it is an experimental project obviously its purpose is to see what result the treatment can bring about thus providing solution to the question. The purpose of the practice of student autonomy should not be the autonomy itself but the better improvement of the learners ability in using the target language. In other words through this kind of practice students are supposed to perform better in using the English language compared with other ways of teaching. e.g. teacher-dominated classroom teaching audio-lingual method etc. The author claim that “the project is intended to encourage students autonomy” and to train students how to acquire various skills in language learning and communication.” doesn’t seem to be a proper
experimental research hypothesis in this situation.

In doing an experimental research whether it is in large scale or small scale the necessary procedures must be followed.

Step 1 Identify and define the research problem as precisely as possible.

Step 2 Formulate hypotheses to be tested.

Step 3 Select subjects and assign them into comparison groups.

Step 4 Conduct a premeasurement to identify differences in the comparison groups or to see whether there is no significant difference between groups.

Step 5 Carry out the treatment by following the planned procedures.

Step 6 Carry out the postmeasurement.

Step 7 Process data analyze results and write experiment reports.


The study report doesn’t show signs indicating that the project is carried out according to these procedures. Neither research problem nor hypothesis is clearly identified. There are no subjects assigned as a control group. Since there are no premeasurement and postmeasurement data analysis becomes impossible.

Context

The author points out that the traditional way of “duck feeding” with “static body of knowledge” cannot produce competent users of English. She intends to maximize opportunities for her sophomore English majors to take responsibilities for themselves.

In the paper the author provides the definition of “autonomy” through citations and argues for the necessity of student autonomy. But there is no literature review about whether research on the same issue has been carried out by others or what have been achieved if it has been done before. Without literature review readers cannot see the necessity of the research or even the value of it.

Subjects and their related information

The researcher uses her own natural class as the experimental subject with no control group. There is not sufficient background information about the subjects such as sex learning habits language level familiarity with the new teaching approach and attitudes toward accepting new teaching methods etc.

Because these factors may affect the result of the experiment they have to be analyzed and evaluated.

If some factors belong to extraneous variables they have to be got under control for some special measures must be taken to deal with them during the process of experiment. Otherwise they will undermine the validity of the research.

Materials

The teacher provides topics with specific requirements for the students to prepare their presentations and any materials concerning any topic are to be collected by the students themselves. The topics with their ways of presentation are deliberately designed since they are related with the course texts and some social issues that may arouse the students’ interests.

Treatment

Defects can be found in the treatment. The student’s practice of autonomy is carried out and is only taken as a complement activity to the Intensive Reading course. Furthermore, one group of students can only work on one topic and during the whole term each student or each group has only one chance to do the presentation practice. With their preparation work included the amount of practice in the language skill of expressing themselves doesn’t seem to be sufficient to make obvious achievement. Besides even if there might be changes it cannot be accounted for the teaching of the whole Intensive Reading course since the course is mainly taught in class. It can be assumed that during the whole process two methods are employed at the same time student autonomy outside class and classroom teaching. It is not clear whether the approach of student autonomy is employed in the classroom teaching. Then it is hard to decide to which treatment the improvement if there is any should be attributed. This counters the essential principles of experimental research.

One advantage of the treatment is that owing to the design of the way in which presentations are given every student is involved in the process of presentation. Each has his/her own specific task in the presentation. In addition to cooperating with the other group members they have to make their own decisions in preparing their own tasks. A shortcoming is that as the practice is undertaken outside class it is hard for the teacher to monitor the process to provide necessary guidance because some students may be reluctant to ask the teacher for help.

As we know the Intensive Reading course aims to train the learners’ integrated skills listening
speaking, reading and writing. According to the design of the research students don’t seem to get equal opportunities to practice the four skills. What among the four skills receives the most practice is probably reading. Therefore, this experiment is more suitable to be conducted for the Extensive Reading course like the Reader Response Approach. Martino Block (1992) in which students are assigned to read the required books and prepare for presentations in class. This experiment can be adopted in this course because the Extensive Reading course mainly focuses on training the learners’ reading skills. Whether they are assigned to prepare presentations based on the topics or to read books their major task must be concentrated on autonomous reading. If the experimental project is designed for this course to practice the students’ autonomous reading and their improvement in reading after the treatment can be measured to check against the pre-measurement and then the difference can be decided. After the effect of the treatment is narrowed down on autonomous reading the research validity can be guaranteed.

Data: data analysis: conclusion and validity

There are no numerical data since there are no formal pre- and posttests. After the treatment, no formal interview is mentioned to be carried out or a questionnaire to be given to collect other data to confirm the effects of the experimental project. Only some comments given by the students are provided:

“the teacher treats me like adults and not babies”

“I should be more confident”

“It is good because we know how others work”

“I’ve learned a lot about euthanasia”

“I now understand that learning means much more than just reading the textbooks”

“I should improve my oral English because I am not as fluent as others”

“The most difficult part of my job is now to give my lecture and involve the whole class at the same time. Teaching isn’t as easy as I thought”

In claiming what the project has achieved the researcher states that the project attained the original goal—encouraging students autonomy—and succeeded in the redefining of teacher-student roles and effective learning as in purposeful learning activity bridging an information gap and upgrading the textbooks.

There are several problems here first though it is an experimental project no statistics are provided. Pure descriptive remarks given by the researcher herself seem to be quite weak and much less convincing. Second as has been mentioned, the achievements claimed by the author don’t seem to be what the experiment project is supposed to find out. If the purpose of the research is to find out whether the project can encourage students’ autonomy and even if the result is that it can surely encourage students’ autonomy then is this approach better than other ways of teaching? In other words, when this approach is adopted can students achieve better results in their language proficiency? Third, even if the researcher wants to find out the stated result, statistics or related data are still needed and must be analyzed to show the result. Due to lack of necessary data the data analysis is out of the question.

In the final part the author states that students enjoyed the project and benefited a lot. A conclusion of a research must be based on the data analysis. From the analysis the researcher can draw out the findings. Descriptions without the support of necessary data and data analysis seem to be quite less convincing.

In carrying out an experimental study an important factor must be seriously considered internal validity and external validity. The internal validity concerns about the question “To what extent can the claimed cause-effect relation be justified? or whether “only the independent and dependent variables are working while the other variables are controlled; the changes in the dependent variable can thus be attributed to the treatment only?” Wen 2001 154 151.

Then how to make sure that the different results can only be attributed to the independent variable and put the other confounding factors under strict control is a key issue for the success or high internal validity of the experimental research. Cohen et al. 2000 126 and Wen 2001 154 157 provided some typical factors which affect the internal validity such as history environment subject selection and maturation instrumentation and measurement and experimental mortality.

External validity refers to the degree to which the results can be generalized to the wider generation.
cases or situations”. Cohen et al. 2000 cited in Bracht and Glass 1968 indicate two major aspects of generalizability: people and environment. People validity is concerned with application to other populations while environment is about the transferability to other settings or context. There are several threats to external validity which Cohen et al. 2000 describe as follows: (i) The independent variable must be explained explicitly for possibility of replication. Poor sampling or randomization may cause lack of representativeness of target populations. When participants realize their role and there is an obvious consciousness of participation which is known as Hawthorne Effect, the effect of the independent variable will be threatened. (ii) The participants’ sensitivity to the measurement may cause confounding effects to the experimental treatment.

In consideration of this experimental project since it is not conducted in a normal way there is no qualification to talk about its validity.

Application value

In the report the researcher claims the students’ acceptance of this approach and the positive aspects the approach may bring to the students. However, lack of data and data analysis have greatly reduced the application value of the research.

Conclusion

Every kind of research has its own principles. We must observe the principles when carrying out any type of research. A true experimental research is usually infeasible to conduct in reality but we can turn to quasi-experiment that is more practical and can get high validity if conducted in a proper way and the extraneous variables are properly controlled. Before carrying out a research project the researcher should try to take various related factors into consideration.

Necessary preparations must be made. Every condition must be examined to decide which kind of research to be adopted. Nunan 2002 points out that the experiment is by no means the only way of research in applied linguistics research. There are other ways which can be used in language teaching and learning such as action research, case study, introspection methods and elicitation techniques. Every method has its own application area. Only such applicants who have widely read the literature in the related field richly informed of the concepts of the principles and process of the related research approach and have a keen eye over what they intend to observe can succeed in what they want to get.

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