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RELEVANCE OF EXPERIMENTAL RESEARCH IN EDUCATIONAL DEVELOPMENT AND UPLIFTMENT

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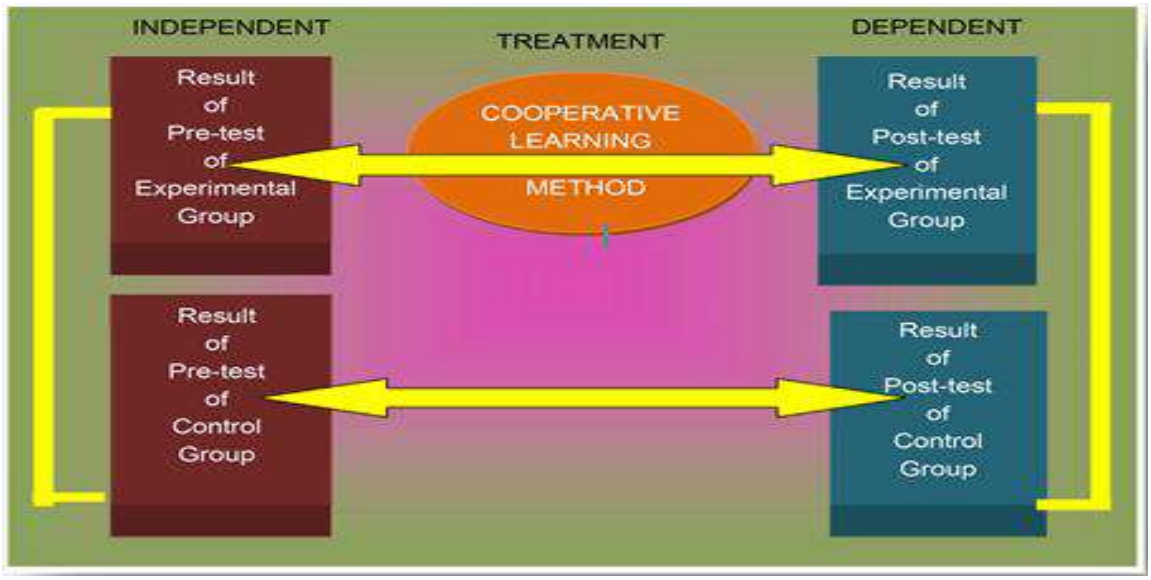
ABSTRACT :

This article discusses the relevance, but also the limits, of experimental research analyzed in educational psychology and language teaching. After outlining the key points of applied research in the sciences, it is used to analyze this type of research in the humanities. The reflection then focuses on the precepts of the languages and is illustrated by a number of examples. But at the end of the argument, the following question is put forward: is it not in the context of a plurality of approaches that research in an area more complex than language teaching should be considered? This article deals with both the interest and limitations of experimental research in language 2 (L2) learning and teaching. After defining the major factors of applied research in science, its application to human science will be analyzed. This will then be used for L2 research and illustrated by several examples. Given the complexity of language learning and teaching, the need for multidisciplinary approaches will be discussed at the end.

KEYWORDS : *hypothesis, experimental research, explanation, variable,educational psychology.*

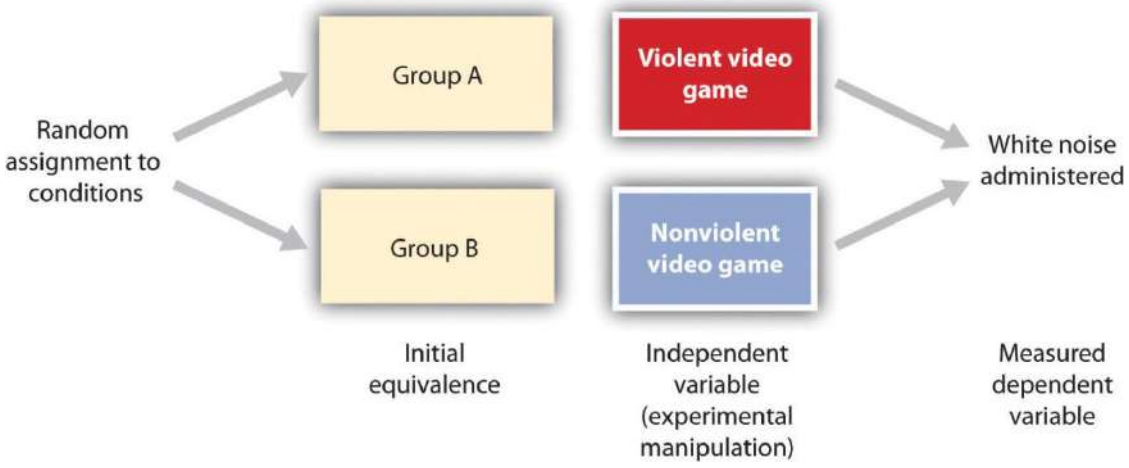


INTRODUCTION:

Learning and multimedia, in Crimean's book Introduction to Psychology, Georgette, Legos, and Maginot recall, "a paradox is often raised about research in pedagogy", namely, on the one hand, "research that aims to capture the real in its complexity". Case studies in psychology and ethnography", and, on the other hand, research "which often uses a hypothesized-deductive approach" (Legos camp; Crimean, 2002: 11). These different viewpoints are also recounted by Chappell (Chappell, 2003: 70). The authors cited at the outset specify that "criticisms are strong, from both sides": "the lack of 'rigor' and the use of a genuinely more 'intuitive' approach" in one case; In the second case the problem of strict control of the situation in so far as "'all other things being equal' would not be possible to account for is 'real'" (Legos camp; Crimean, 2002: 11), i.e. the complexity of the situation Of learning. Therefore, many types of research are possible in language teaching, and we will maintain on the basis of Ganged et al. (Ganged et al., 1989), whose work focuses on the theory of French as a mother tongue, that research is characterized by a double criterion: that of purpose and methodology. In relation to research, the objective is to explain, by performing an experiment that makes it possible to confirm or refute predictions (i.e. hypotheses). Smart, using the typology of the Gages team, specify: As part of a hypothetical-deductive approach, research is an experimental endeavor, using a cause-and-effect relationship between variables to verify, in the light of a theoretical framework. Carefully controlled devices by manipulating them (Seward, 1994: 487). From these quotes we note, foremost, that the major considerations in the context of research experimental, in addition to the verification/invalidation of a hypothesis, are: the establishment of rigorous equipment, strict adherence to a protocol, identification of variables, control of conditions, with Only the establishment of a causal relationship (hypothetical-deductive based on logic) to arrive at an explanation of so many assumptions that need to be deepened in order to define as precisely as possible its relevance, as well as the analysis of its limits What is applied research to do in language teaching. To this end, we propose to first briefly circumscribe experimental research in its core area of use, then to analyze to what extent it can be applied to the anthropological sciences and in particular to didactic languages.

4-EXPERIMENTAL RESEARCH: FROM SCIENCE TO ANTHROPOLOGY

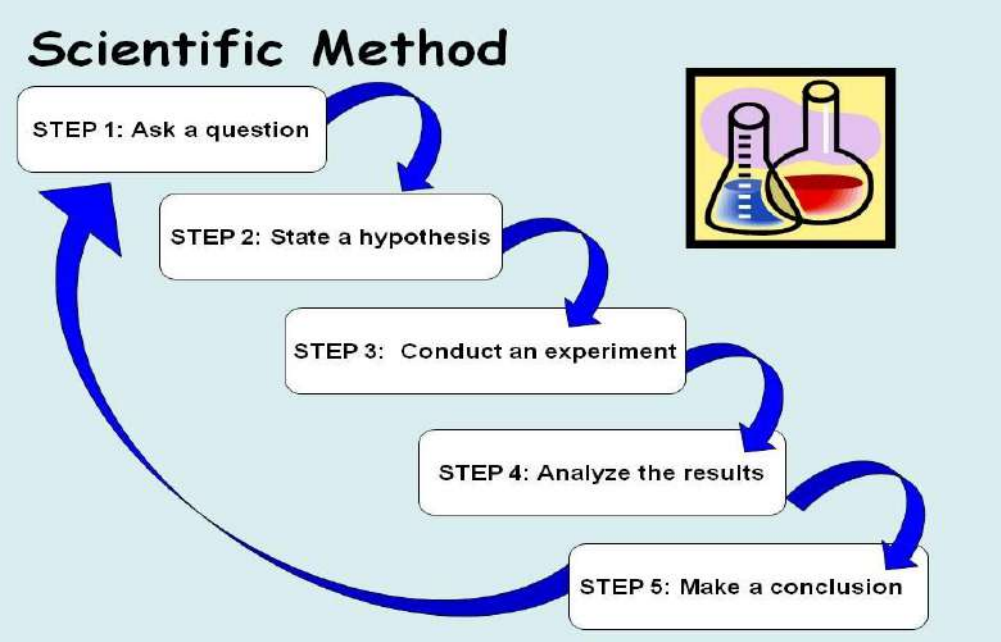
We will try to define research here, according to the historical development of experiments in science, then in humanities.



5-EXPERIMENTAL RESEARCH IN SCIENCE

By retracing the history of experimental research in science, we have attached to identify the given definitions as well as the stages that characterize it. In his introduction to the study of experimental medicine, Claude Bernard has this to say in 1865: The experimental method, as a scientific

method, is based entirely on the experimental verification of a scientific hypothesis (Bernard, 1966: 304). The experimenter, in the form of a question [...] presents to his consideration an anticipated explanation of nature, more or less probable, from which he deduces logically the consequences which he encounters at every moment of experience. Reality through a medium (Bernard, 1966: 60). For Claude Bernard, the father of the hypothetical-deductive approach, it is the hypothesis that is central, the expectation of reality that is tested through experience. Here we find an idea already expressed by cleverly in 1856: an event overwhelms your senses; you look at it with the intention to find out the reason, and for this, you take one of the values you are looking for verification by starting an experiment. It is logical that method I call experimental, because ultimately experience controls, the test of the correctness of logic in reason or the search for truth (Cleverly, 1856: 27-29) In other words, we make assumptions and test them in the face of facts.



6-HYPOTHESES ARE TESTED BY EXPERIENCE.

Thus, science seeks to "make a better representation of what we are by establishing what François Jacob (Jacob, 1987: 251) calls? Reality Relationships and the highlighting mechanism. More precisely, if we refer specifically to Jordan, according to which "scientists clarify problems, observations, experiments, proposing hypotheses, theorizing and test them when reporting their results to colleagues" (Jordan, 2004: 83), the Experimental approach can be defined as an approach built around the steps next.

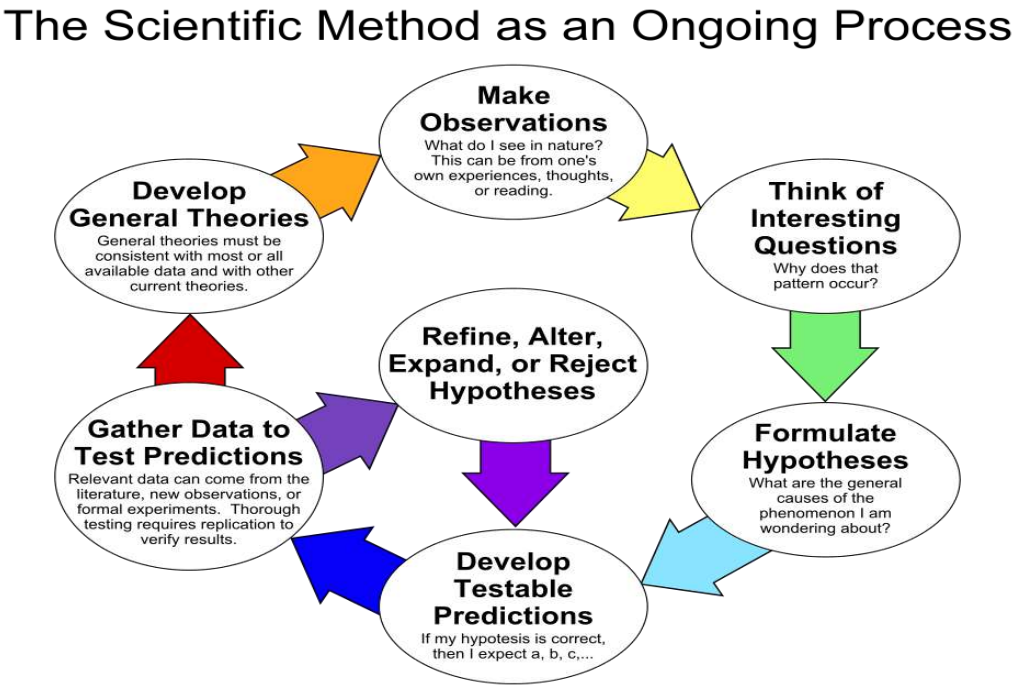
- One question.
- A problem to solve?
- Formulation of a hypothesis (based on theoretical references).

Hypothesis testing. After planning data Collect, as well as implementing and following up on, the results of procedures are recorded, analyzed, and interpreted. Then we compare the expected results and the observed results, i.e. we compare the experimental results for the estimates made.

- A validation that allows validation.
- A generalization (making sure it does not go beyond the interpretationspossible). Based on the observed results, an abstract relationship develops,to reach an explanation, even an explanatory model, or contributiontheoretical. Jordan explains:

The deductive, rational approach favored causal explanation -While the inductive approach led to more descriptive explanations(Jordan, 2003: 46).

He also points out, on the one hand, that in the case of induction, it is logically impossibleto go from the particular to the general, and, on the other hand, in the case of deduction, testEmpirical evidence leads to certainty when demonstrations are establishedIn Popper's terms an idea is false, otherwise it is possible to put forth Hypotheses are confirmed.



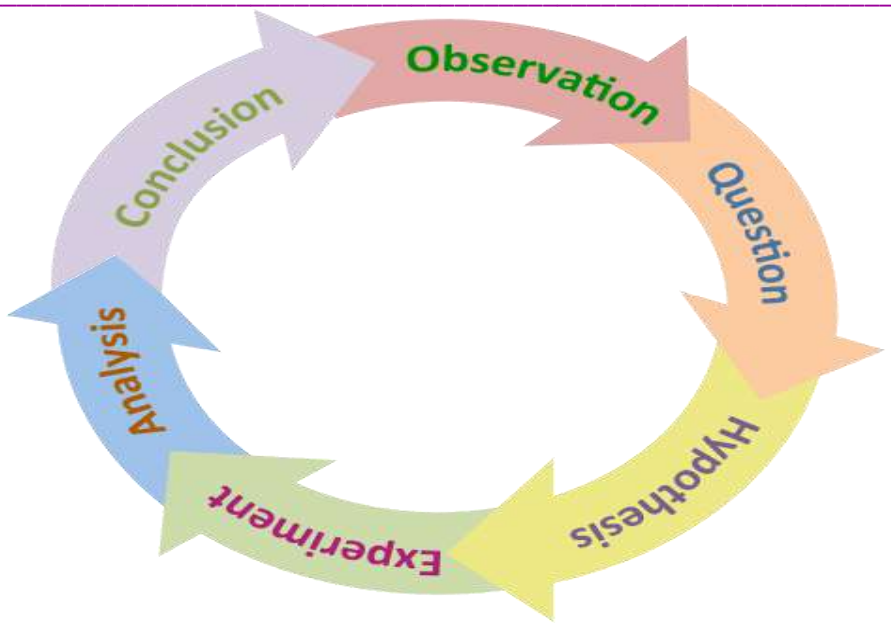
7-THE LAST STEP IS THE COMMUNICATION OF THE RESULTS.

- We also note that in testing, it is important:
- Isolate the variables related to the studied phenomenon;

Only one factor varies at a time. De Becchi recalls: [Therefore] it is important to define the various factors that interferein an incident. And it is equally important to analyze themseparately, one after the other. To each, it will be a question of making themvary, all else remaining equal (De Becchi, 2006: 142–143).Furthermore, as Jordan summarizes:

Experiments are observations made under controlled, reproducibleconditions, and one of their main functions is to allow others to fulfillsimilar experiments at different times in different places (Jordan, 2003: 85).

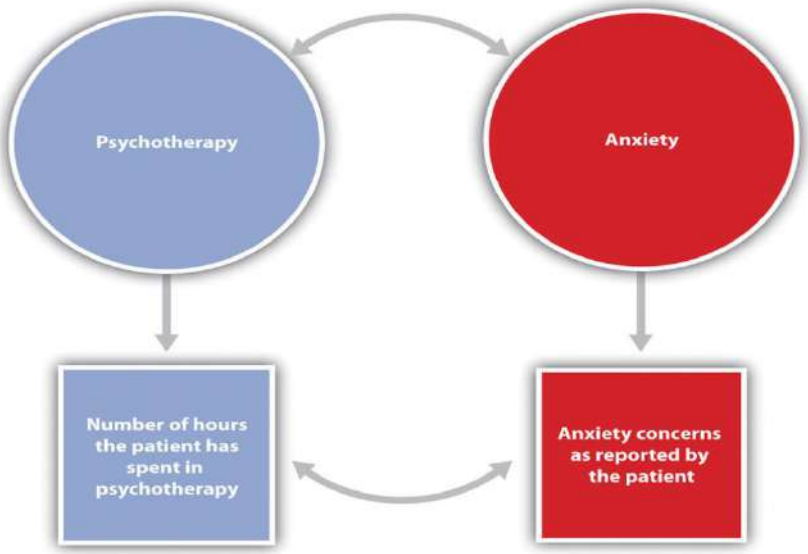
That is, the experiment must be controlled and reproducible. We agree withMalaren who declares:The main thing is to give the result, which is achieved according to the exact rules,enabling all researchers to arrive at the same interpretation ofthe result (Minaret, 2004: 20).Key points of the experimental protocol that emerge here, and which combine those notedin the introduction, there isthe separation of variables to separate them separately,reproducibility of the experimental condition, and generalization of the conclusions drawn.Let us now consider how this research method can be applied. Social Science.



8-QUASI-EXPERIMENTS IN ANTHROPOLOGY

Experiments in Humanities and Social Sciences:consider how much more fortunate than the physicistBehavioral scientist who works in field settings. A physicist can use alab to create physical separation, and he often works withObjects that do not change during the time period of an experiment. It is goingtherefore, history, maturity, and regression are not problematic, and dataSingle-group pretest–posttest changes are often causaland explainable... On the other hand, the social scientist has fewadvantages over the physicist [...], social scientists are trying to answercausal questions in more complex social systems where institutionsstudies are clearly liable to change for reasons that have nothing to do with use (Cook & Campbell, 1979: 102–103).

These authors express here that it is possible to establish a causal relationship in physicseffect from an experiment because laboratory conditions make it possible to makeisolation and because the researcher often works on objects that do not change during the processduration of use. However, the situation becomes more complexin the Humanities and Social Sciences.



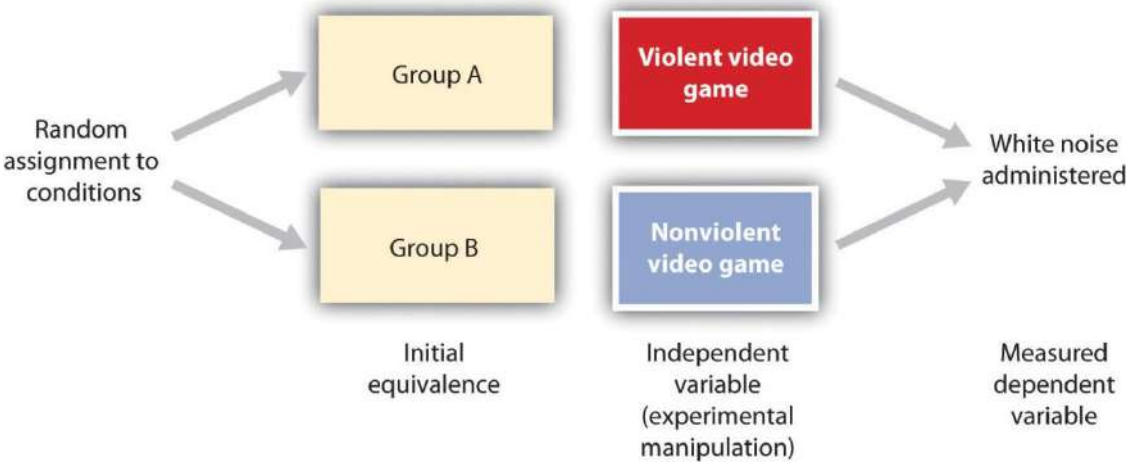
Indeed, as we have seen earlier, in a research contextExperimental, everything must be able to be controlled, verified, reproduced, and recalculated. Moreover, the experiment compares the results obtained in conditions that are knownas the variables and to study the results on one of them we change one of theother.However, in the humanities and social sciences, and especially inTeaching/learning, the following difficulties arise.

- The influence of external factors that may interfere during aUse. Of course, this effect may be limited in some cases.by a short period of use, but, in the principles of languageFor example, we also know that learning is a long process and that it also makes it possible to go beyond the dichotomous vision that we noted in the beginning and for whichconsider that in language teaching, there is a complementarity between variousapproach, provided that the methodological choices are reasonable, and the use ofThe equipment is compatible.

9. EXAMPLE IN LANGUAGE TEACHING

Want to devote the third part of this presentation to research examples (semi)
Experimental in the precepts of language, we see that they are either part of a framework (semi) experimental, or at a methodological crossroads (as they Part appeals only to the experimental). Refers to what has just been said complementarity of approaches in an area as complex as Teaching/learning a second language (L2).

9.1. Examples of (Semi) Experimental Research



9.1.1. Experiments on the Effects of Double Synchronous Coding Thrust in L2

This study was conducted and presented by Stanton, Pecha, Vaillant-Sirdy, and Tricot.First International Symposium on Cognitive Theories January 26-28, 2005 in Toulouse(Stanton et al., 2005). First, it should be noted that his work focuses on the difficulty of learnersof French speakers to encode information related to tonic pronunciation in English and consequentlyremember it, create it, or reproduce it.The aim of the project is to develop an authoring system that makes it possible to audibly highlightthe stressed syllable of a word visually to focus the learner's attentionon this delicate point of pronunciation in English.

Let us examine the experimental approach implemented by this team of researchers.They estimate that-

- Double coding of stressed syllables improves performancein beginner elementary;
- It does not improve or degrade the performance of experts;
- This dual effect is observed with written and oral response methods;

- Performance is better than for a written recall taskor Verbal recall task.

He tested these hypotheses empirically.Three groups of participants were created: expert/intermediate/novice. A list of 10 English words was presented to them, 1 in each of two ways. Separate:

- Audio coding only;dual coding (audio and visual);With respect to the protocol and measurements, we note that:
- Each group is divided into subgroups;
- each subgroup works on one way of presenting words;
- The methods of retrieval are written and oral recall tests. In the case of written reminders, the student hears a word and must tick it on a sheet reproducing a list of 10 words, the stressed syllable in front of the wordaccordingly. In the case of oral memorization, the student hears a word and mustPronunciation. Responses are binary coded: tonic accent placed

Correct = 1, Tonic incorrectly placed = 0.

The researchers then analyze the results obtained, which allows them secondtime, to validate or not their initial hypotheses, which were put to the test of the test.They add, to conclude, that an experiment in progress seeks to replicate the effects obtained.With more complex and more relevant material from a didactic perspective (rather than aList of words, statements will be proposed).From this example of (semi)experimental approach, it is possible to retain the key pointsnext.

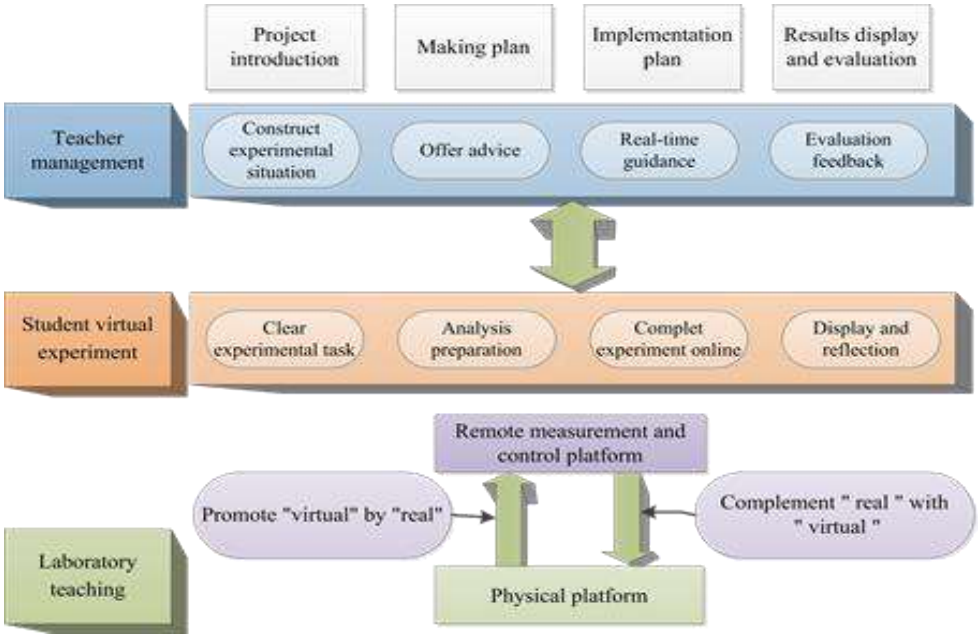
- Here the research is related to a well-defined area.In the protocol, level groups are formed as perthe research objective, and only one variable is varied at a time (visual coding). Then we see what happens for each group'sdifferent levels.
- Testing of hypotheses allows the return of these hypotheses (whichare then valid or not).
- The experimental framework makes it possible to obtain the acuity of observation allowedby laboratory conditions. Findings are not relevant andhenceare a common value. On the other hand, we are not within the frameworkfor an authentic practice, so we do not provide any information

Information about the learning situation in a broad sense. Nevertheless, the experiment is not without practical consequences (even if theyare indirect). Indeed, the system may eventually allowFrench-speaking learners to be better understood by native speakers, andwe know how necessary it becomes if we considerthe Effects of ongoing phonological naturalization during learningL2, and it

should be failed. Remember that indigenization, a conceptdeveloped by Anderson (Anderson, 1983), involves treating any newLinguistic data already as per internal norms, which includeLanguage 1 (L1), other languages have already acquired as well those representationsLearners intervene in L2 as well.

9.1.2. Experiments on the Effects of Subtitles in the Acquisition of L 2

This research was conducted by Boris & Lafayette in 1994 (Boris & Lafayette, 1994). He Chappell's (Chappell, 2003: 91).Study deals with the effect of access to video subtitles on verbal productionFrench L2.



We will summarize the protocol as follows2put in place.Two groups of students are formed. Some watch a video and maybeAccess subtitles for those with hearing comprehension difficulties. Others watch the same video under the same circumstances but cannot accessor subtitles. Verbal production was measured by asking the learners in both groups to broadcast information about video content. They were evaluated on the basis of four Criteria (efficiency, accuracy, organization, and fluidity). Turned out to be higher if subtitles were accessible.

The conclusion that follows from this is in the context of working through a video mediumauthentic, the ability to view and control captions enhances L2 expression (besides understanding).

The key points highlighted in the previous example apply to this one as well. Weight is realized that, in this quasi-experimental protocol, we access a variable (possible for subtitles), then we measure and compare the results achieved by the learnersof two groups (groups that can be considered approximately equivalent).

Examples of Methodological Crossing

10-Research on the Effects of Writing Instruments

This 1994 study by Snyder (Snyder, 1994) aimed to analyze the effect of the device. Writing (word processing or pencil), on the quality of text produced by learners, Writing processes, as well as teaching/learning contexts. The experiment was conducted over the course of one school year in two eighth-gradeclasses. Whose pupils had the same teacher and practiced the same activitiesof writing1st graders only used word processing that was in classSecond grade Wrote in pencil only. Production of

texts (narrative,logical, and informational) was blinded by external assessors. Andthe author specifies that the quasi-experimental method (with pre-test and post-test) wasSupplemented by a questionnaire, observation, and interview. The conclusions of this research are:

- The quality of the texts produced (especially argumentative and informative).Group classes using word processing are superior to lessons Created by group-class using paper/pencil;
- Results do not reveal any difference in strategies for learner planning and review; Differences were seen in the educational context between the two classes. For example, the pencil focuses on the squareTeacher talks while students using word processorsexplore more with each other to accomplish tasks and various writing options.

In this example, we use both quantitative and qualitative data. As a result, we also get information about the learning situation (as opposed toprevious examples that call for laboratory conditions, not field conditions).More specifically, the different types of data collection tools usedThe purpose of the research makes it possible to relate the effect of writing toolsproduced text and teaching/learning context, since The author's conclusion is that word processing has made it possible to establish newCollaborative and cooperative ways of working that promote learningtext output.

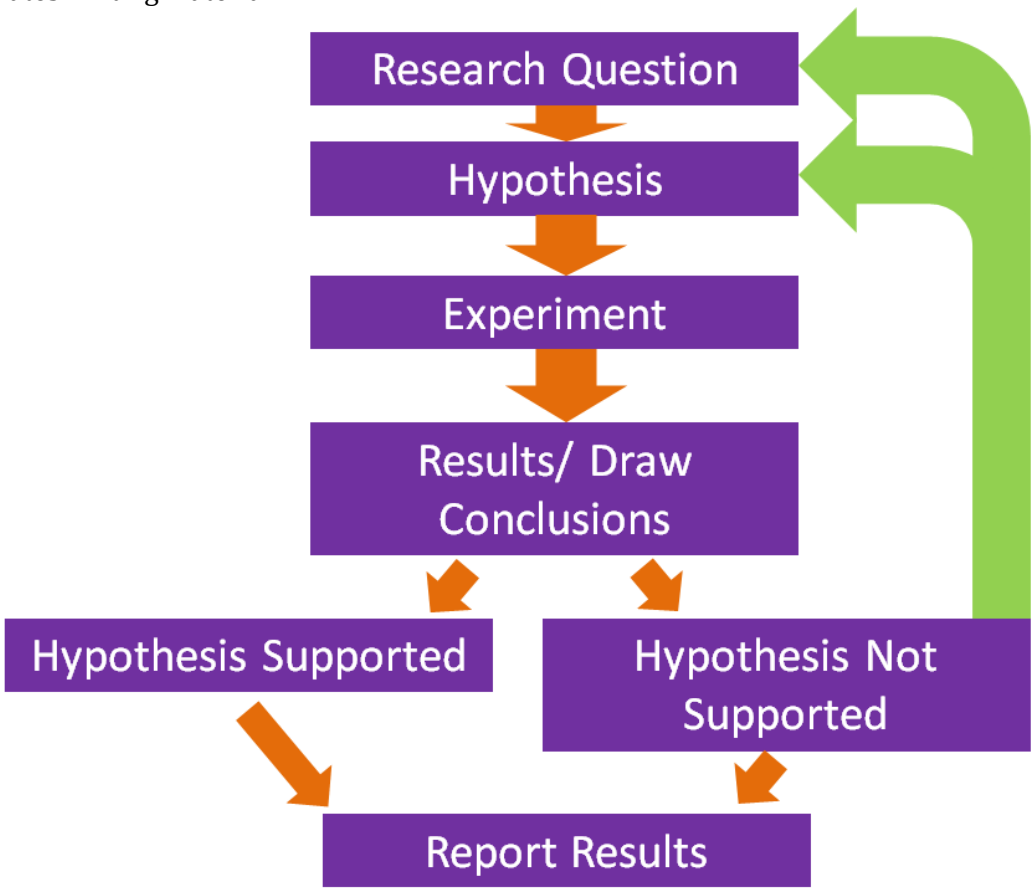
Here we take advantage of the complementarity of the approaches we presented in paragraph 3.2., and we agree with the approach of Gagne's team, which is summarized by Simmer: Research can be both quantitative and qualitative if, for example,In addition to using an experimental design and statistical analysisResearchers use qualitative techniques such as interviews orCase studies to better understand what happened to the studentsduring the academic treatment put to the test (Simard, 1994: 488).

11-Quasi-experimental research action research

This example is from research we carried out (Grosbeaks, 2006) that concerned students from the IUFM in Paris and King's College London on a collective project of multimedia production among trainee teachers from schools. These partners have been notified in English by email for the joint creation of the resourceDigital. We hypothesized that such a project has the potential to operate as a lever for learning English (L2) for UFM trainees.

It is an action-research type of research that allowed us to measure the scope and limits of the established system in relation to the stated objective, and to lead (according to the research-action cycle) the training proposal.However, this research includes a component that is of the order of quasi-experiment that falls under the study of the phenomenon of phonological naturalization. Its study phenomenon is justified by the fact that training is one of the macroscopic tasks of the landscape.For trainees, involves sharing material orally with a group-class

Emails everyone received from their partners at King's College. As a result, the authentic input serving as support for their oral production is exclusively in written form, so it lacks a phonetic dimension. However, theoretical references suggest that L2 learning suffers from L1 interference problems (among others), which are related to localization phenomena. Furthermore, Shane and Forster (Shane & Forster, 1999) do not exclude that phonological activation during a spoken production task automates writing material.



12-Experiment that involved comparing trainees

We then asked the question of planning the phonological set-up by the learners completing the macro-task of oral production based on the written input. Isn't the risk of naturalization here high since the input is oral? To test or disprove this hypothesis, we were given an experiment that involved comparing trainees' oral presentations to written material (e-mails received from their English-speaking correspondents), and to trainees' verbal support. Oral production (from tape recording).First, we indexed, for all trainees, the items of each of their oral productions as well as the items of associated support (either tape recordings or emails), using a concordance. In a moment over time, the coordinator made it possible to list related items, in list formfor both oral production and related medium.Then, we selected each list and thus established those items which presented a pronounced deviation from the stated objectives.

We conclude that the percentage of recovered items (from the medium) that show deviations is best when the medium is spelled out. We then proceeded to the phonetic analysis of the items presenting differential pronunciation. It was found that the pronunciation difficulties encountered were influenced by the L1 of the trainees. We were thus able to establish a link between differences in accentuation and the occurrence of notarization (that is, enforced by L1, for which we are limited) and

conclude that nationalism is more effective when verbal production is underwritten input, only when verbal production is under verbal input, and so on to confirm our hypothesis.

13-In this research, the qualitative and quantitative were combined-

This made it possible to enrich the focus of the study and provide information both on the learning situation (for the research-work part), but also on a very specific point in the learning contextL2, the phenomenon of notarization (for the quasi-experiment).5. In a complex field such as language teaching, many typesResearch is possible, as we mentioned in the introduction. Rather insteadalthough they are mutually exclusive, it turns out that they complement each other because they provide different information. In fact, the role of (quasi) experimental research is to provide access to information about particular factors, and for that, it somehow liberates reality.

So does not allowUnderstandingof the complexity and dynamics of the teaching/learning situation holistically, as opposed to qualitative research.

Certainly, as early as the 1970s, it was experimental research that was advocated in the pedagogy of languages. We were essentially in a framework that was strongly scientific in intent and involved formulating and testing hypotheses beyond the empiricism of practitioners. We then introduced the constraints of the protocolExperimental: Isolation of variables, comparison, quantification, externality observation, formalism. To this method of research have now been added other approaches which do not provide explanations with generalizing value, but helpunderstand the teaching/learning situation in the broadest sense.

14-CONCLUSION

In fact, the epistemological choices depend on the purpose of the research and the Researcher's position. The methods used differ and complement each other, as Chappell and Jordan put it: I have suggested that research methods need to be linked to the research questions the researcher asks. From this perspective, the focus of the call is not a theoretical orientation but the quality of the task (such as the ability to learn a language) for which research evidence is sought (Chappell, 2003: 80). ALS research requires a multi-method approach (Jordan, 2004: 116). It would therefore be more appropriate to consider research in language teaching as a plurality of approaches, even of methodological crossings, so as to include an eye towards the social, to produce, ultimately, knowledge in the service of practice.

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