

Content Based Instruction and Validity
in CALL Research

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Researchers in CALL methodologies have had difficulty in determining internal and consequently external validity. The types of research, most commonly quasi-experimental and descriptive, though yielding many interesting and theoretical results, have done little to enhance the applied aspects of CALL. It would be beneficial for future research to be more action based and preferably carried out or supervised by an educator directly concerned or involved with the practical aspects of computers and language learning (Mercer and Scrimshaw p. 189).

Of the two research types mentioned descriptive research seems to be of the most immediate use to CALL. This is because descriptive research can give direct feedback and insight into questions of content based instruction, which would seem to be the most profitable application of computers in language instruction (Paulsen, 1993), (Snow & Wesch, 1989). Quasi-experimental research however is not without its merits, providing a theoretical base from which more practical research can be conducted. Both methods of research, commonly applied to CALL, have not yielded significant results and have often failed to address the key issues in CALL. The main reasons for this are lack of validity and absence of researcher/educator communications.

Validity concerns in quasi-experimental research have typically been the result of intervening variables such as context of learning, student's characteristics, materials used, attitudes towards computers, teacher or language, outside exposure to language and overall instructional differences. These types of variables are impossible to regulate without strictly controlling the environment and therefore changing the entire nature of the typical classroom (Chapelle and Jamieson 1986). As a result, whether students are using computers or not it is difficult to gauge the effects on acquired language proficiency. Studies by Shaeffer (1981) and Abraham (1985) suggest that measures of language can be placed on a continuum from discrete point tests to integrative communicative aspects of language. Discrete point tests have demonstrated strong internal validity since they measure isolated aspects or structures in language they can clearly show a cause and effect relationship between computers and acquisition. However valid such measures, due to their isolation and lack of linguistic or functional context, do not represent true knowledge of a language and are therefore of little use in the broader scope of ESL teaching (Oller 1979). Integrative measures, though offering more applicable results to language learning, are seldom able to accurately define what aspects of language have been acquired through which activities. As a result these studies fail to make any significant connection between CALL activities and improved language proficiency.

The nature of quasi-experimental research, as opposed to experimental research, implies that it is impossible to control or manipulate all variables in a controlled setting. Thus researchers will have to carefully measure and define as many variables as possible without disrupting the learning environment. This may or may not increase internal validity however it will enable results to be compared and possibly generalized to other like investigations thereby offering external validity, which should be the ultimate goal of any educational research.

In descriptive research validity issues have been caused primarily by the lack of clear operational definitions and inconsistency of observed phenomena. According to Abraham and Liou (1991), this kind of research can only be as valid as assessment procedures. Descriptive research largely depends on subjective feedback rather than empirical data therefore it is subject to

interpretative discrepancies. The focus of this research is predominantly on student attitudes towards CALL and the learning strategies they employ. Most information regarding these can only be obtained through student reports and classroom observations. Student reports tend to be in the form of open ended questions, Likert or ordinal scales and opinion surveys. Though generating much information these reports often lack validity as a result of student bias towards the teacher or program "halo error" (Thorndike & Hagen, 1977), responses are not representative of students true feelings and generally lack reliability due to survey design flaws. Observations of learning strategies and other phenomena in the classroom are likewise limited in their ability to provide internal validity again due to the nature of the data and the way it is processed. Observation of student activities in CALL is typically video or audio recordings or computer programs that monitor and record student interaction. These processes yield vast quantities of data that must be interpreted and categorized if it is to be generalized to other situations. The question of validity, particularly in observational research lies in this interpretation. It is necessary that assumptions made from observations and reports are consistent among researchers. Many similar opinions and evaluations are needed to determine validity. Unfortunately the vast quantity of individual differences in CALL are rarely controlled and researches often fail to provide the adequate operational definitions needed to generalize results to other settings, which is an integral part of this type of research. Future research must compensate for the unique learning environments and individual differences by clearly defining variables such as context, subject characteristics, learning materials or instruction used. If progress can be made in these areas, descriptive research in CALL could be very rewarding.

The importance of descriptive research lies in its study of attitudes. Researchers investigating attitudes have made some significant findings regarding positive affect on language acquisition. It has been observed that positive attitude towards language learning has a positive affect on acquired proficiency (Gardner, 1985). Attitude would seem to be the reflection of learners interest in subject matter, its relevance and applicability. Providing the student with meaningful and relevant content would positively influence

attitude. Content builds interest which improves attitude consequently employing more effective learning strategies and increasing language acquisition (Snow & Wesch, 1989).

The value of content based instruction has a long history and is very well documented. For centuries study or travel abroad or direct contact with speakers of the target language has been associated with successful language acquisition (Snow & Wesch, 1989). Today this is still a very popular method as can be seen by the growing demand for English for Special Purposes, Immersion and Home-stay programs. These are all based on the premise that language is best acquired "incidentally" and that learner's overall linguistic objectives are key factors. Snow and Wesch (1989) outline five rationales for content based instruction which suggest how language proficiency may benefit. These are; focus on language goals and eventual use of the target language by the learner as in English for Special Purposes programs, relevant content increases motivation which promotes successful language acquisition, content materials build on learner's previous knowledge and allow meaningful linguistic connections to be made, language is presented in a meaningful context rather than in fragmented arbitrary examples and finally, target language input must be understood by the learner if it is to be acquired successfully (Krashen, 1985). Upon understanding how meaningful content is essential to successful language acquisition, the next step is to relate this to computers and identify their role in instruction

Computers with their versatility, multimedia, communicative and integrative capabilities are ideal for providing rich content based material. Therefore it would follow that CALL research should be geared towards determining how computers can best provide content and what that content should be.

Significant CALL research has primarily been in the areas of meaningful input and content based materials and not in investigations of language structures or whether computers have a place in the language classroom. It would appear that computers are here to stay and that they should be an integral part of any instruction. Most students will at some point have to deal with computers, so in a sense CALL is providing language for the real world. Having determined the computers most useful role as provider of meaningful input and interaction, it is left now to identify

learner's individual needs, interests and objectives and how computers can best accommodate and cater to these.

Studies in content based CALL have found many significant examples indicating a positive correlation between meaningful computer activities and improved language proficiency. Paulsen (1993) outlined some of the many techniques in which computers and meaningful input and interaction can be used successfully. Some of the most notable include computer mediated debate, simulation, role play, discussion and group project.

A computer mediated debate scenario (Clark, 1992), requires students, using the target language, to research and present a case for a subject of controversy then discuss or argue it in detail. This takes the focus off of language structures and allows the students to function and interact in the language. Simulation provides the students with a realistic scenario or situation in which to practice and experiment with language in a way relevant to their future objectives. Hsu (1990) in a nine week business course, had students manage their own companies assign roles, report on sales and production, compile data and compete with each other. While computer role plays similarly provide meaningful input and encourage interaction they also overcome some difficult organizational problems and significantly reduce affective factors such as shyness (Hiltz, 1986). Role plays by computer provide anonymity, confidence, realism, facilitated planning, and a diversity in settings and scenarios that are difficult to achieve in regular classrooms (Hiltz, 1986). Discussions via computer also eliminate affective factors while allowing instructors to closely and discreetly monitor and record student activity and performance, enabling them to give the students detailed feedback (Phillips et al. 1988). Variation of question asking activities such as the hot seat, twenty questions or the critique, presented by Easley (1991), demonstrate how the anonymity created by computer mediated activities make expressing opinions and sharing inner feelings and thoughts much easier than in more direct, confrontational communication exchanges. Riel (1990) found that by engaging in group projects, students were able to "acquire knowledge, develop learning strategies, increase self esteem, and develop meaningful relationships." (35, p. 452). This was achieved by having students select, plan and communicate project ideas while working together to analyze and compile information for a final product. Such a computer project activity may take many

forms incorporating the mediums of discussion, debate, role play or simulation and is of great significance because all of the input and content is selected and supplied by the students thereby ensuring interest and relevance.

We can see how computers are useful in providing meaningful content and that content based instruction is an effective means of improving language acquisition. Thus the focus of CALL research should be in defining the best means to supply meaningful content to the learners. Information pertaining to content would most likely be best provided by content teachers descriptions of methodologies and curricula and students reports on their interests, goals, and language objectives. There are many questions that need to be answered to maximize CALL viability. Whether descriptive or quasi-experimental research has to be more considerate of learner diversity and the unique environments created by CALL. Do the learners have specific needs, interests, goals and objectives? How do learners meet these needs? Which strategies are employed? What is the overall purpose for learning another language? How can educators facilitate these objectives? How can these be integrated with language teaching objectives? These are all questions that need to be considered and their answers carefully defined if research findings are to be helpful and ultimately generalized to other situations.

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